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THE MOUNTAINS OF GIANTS

A RACIAL AND CULTURAL STUDY OF THE NORTH ALBANIAN MOUNTAIN GHEGS

BY
CARLETON S. COON

[Title page]

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The Typical Mountain Gheg – Malsia e Madhe.

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PREFACE

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PREFACE

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THE data on which this study is based were gathered in northern Albania during the fall, winter, and spring of 1929–30. Funds were provided by the National Research Council of Washington, D. C., and Mr. Francis Drexel Smith of Colorado Springs, Colorado. After the field work was over the National Research Council, whose Fellow I was, paid my salary for one year, as well as the expenses of statistical analysis and typing. On April 7, 1932, the report was presented to the National Research Council, which approved it. It was also submitted to, and approved by, the then Albanian government. Owing to a number of reasons publication was postponed; with the generous help of a grant from the Milton Fund and J. H. Clark Bequest of Harvard University, and of another from the Viking Fund, I was able to employ an assistant in 1946–48 to help me with a complete revision. That revision is now finished.

The personnel of the 1929–30 expedition included, beside myself, Mrs. Stanley Salmen (then Mrs. Coon); Mr. Frederick E. Farnsworth, now a U. S. Foreign Service Officer; Mr. Anthony Stevens, a member of the U. S. Consulate staff at Tirana; and Mr. Stavre Frasheri. We were facilitated in our work by Brigadier General Julius C. Holmes, then chargé-d'affaires at the U. S. Legation in Tirana; the late Dr. J. Dineley Prince, then U. S. Minister to Yugoslavia; Mr. Paul deMille, then U. S. Consul at Tirana, and Mr. Joseph Shutack, a member of his staff. Messrs. Kota, Rauf Fico, and Xhelal Frasheri, of the erstwhile Albanian government, all rendered us aid, as did the British officers in charge of the

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June, 1948

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122 Albanian gendarmerie, including General Percy, and Colonels Stirling, Martin, and Glegg. Had it not been for their gendarmes we might not have succeeded.

000 During the many years which have elapsed since that journey I have received help from many quarters. The venerable Miss M. E. Durham wrote me valuable advice and information. Mrs. Margaret Hasluck, an authority on things Albanian, did the same, and during World War II, I had the pleasure of conferring with her several times in Cairo and drawing on her seemingly limitless fund of information.

The final period of revision was marked by the generous help of a number of Albanian friends in America. Bishop Fan Noli read the first and eighth sections and made many corrections; he also helped with new information. His loyal and able helper, Mr. Gerim Panarity, has always been ready to come to my assistance. In the task of measuring Tosks of two generations in the Boston neighborhood, Mr. Panarity was joined by my old friend Mr. Peter Peterson and his father, Mr. Dmitri Peterson, both of Somerville, Massachusetts, and by many others. Mr. Stavro Skendi of New York gave me information and advice on Albanian linguistics.

David de Harport and Dr. William Laughlin spent many evenings on the measuring program just mentioned. Mrs. Martha Dick did the calculating and typing during the later period, as Mrs. Constance Woodbury did nearly two decades earlier; my wife, Lisa D. Coon, drew the maps and figures. Dr. Stanley Garn helped me understand the mechanics of biting, and Dr. William J. Crozier, as always, gave me statistical advice.

Carleton S. Coon

The Officers of the Excavator's Club – a private organization of students of anthropology in Harvard University and Radcliffe College – in order to show their appreciation and affection for Professor Coon, initiated a fund to help defray the publication expenses of this monograph.

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THE MOUNTAINS OF GIANTS

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000 THE DINARIC PROBLEM

The Dinaric Problem

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DENIKER (1852–1918) was the first major taxonomist of man to recognize the difference between 2 types of European brachycephal, the curvoccipital Alpine with his round face, low-bridged blobby nose, and stocky build; and the taller, leaner, Adriatic or Dinaric with his planoccipital skull, his long, triangular face, and his long, narrow, and convex nose.[1] He correctly located the Dinaric concentration in the mountains which skirt the eastern Adriatic coast. A similar form, the Armenoid, he also found in the mountains of Armenia and the Caucasus. Series measured since Deniker's day have confirmed the existence of such people in these areas. Other evidence has shown that Dinaric features are not confined to the white race, but may be seen in parts of Asia and Oceania, and among some of the Indians from Mexico and Peru. These observations have led to the thesis that Dinaricization is a biological process which can happen to people anywhere under circumstances yet to be established.

In all of the early cranial material discovered so far in the world, Dinaric specimens are absent. Nothing could be more removed from the cranial and facial forms of Neanderthal, Cro-Magnon, Galley Hill, or any other known fossils. A short, high head, a long face with a narrow jaw, a flat occiput–all these features stand at the opposite evolutionary pole from the early specimens. None of the early skulls from America are Dinaric, nor are any to be found in the Far East. Neolithic men in Europe, the Near East, and Africa are almost uniformly Mediterranean, and what tendency toward brachycephaly occurs is curvoccipital, presumably a survival from earlier populations.

The earliest Dinarics known consist of a few skulls from Bronze Age sites in Mesopotamia, and late Copper Age burials in Cyprus, dated at about 3000 B.C. Even then, Dinarics were a minority. Fragments of three presumably Dinaric skulls have been unearthed in Spanish

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[1] Deniker, 1890 and 1900.

[2] Coon, 1939.

000 Bell Beaker tombs, while in Britain, Austria, Germany, and the Adriatic Alps a hundred or more may be attributed to the Bronze Age.[2] Tomb forms and grave furniture indicate without question that these people were immigrants from the eastern Mediterranean. During the whole racial history of Europe there is but one time when these migrations could have taken place—the beginning of the Bronze Age. Even then the immigrants could not have come in large numbers, nor as a racially homogeneous population.

[141] Today the Dinaric concentration lies in the Adriatic Alps, with a smaller nucleus in the Carpathians. Authors who published before 1929 felt that the very center would be found in northern Albania, because the country was wild and rugged, the local speech the most archaic in Europe, and because the small series of mountaineers already measured in Scutari so indicated. Ghegnia seemed the strategic place in which to study the Dinaric problem. This is really 2 problems: (a) to describe in detail the Dinaric type, and (b) to explain it. We shall attempt both.

Modern biology offers at least 2 theories which would explain Dinaricization.

1. *The Hybridization Theory.* A combination of dominants in a cross between 2 genetically different populations, one long headed and narrow faced, the other round headed and broad faced. If the short head, broad head, high head, broad forehead, narrow jaw, long face, long nose, narrow nose—all these were dominant over their opposite numbers, and brought together, a Dinaric form might result.[3]

2. *The Evolutionary Theory.* As Dobzhansky[4] points out, most geneticists now hold that mutations take place gene by gene. If Dinaricization is an evolutionary process, then only one gene is involved. To determine this we must study the mechanics of the Dinaric head and face form. Furthermore, if this is true,

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[3] This theory was advanced by Hughes, 1938 (still unpublished), and Coon, 1939.

[4] Dobzhansky, 1944, p. 258.

000 Dinaric Europeans should not differ from other Europeans, or Dinaric American Indians from other American Indians, etc., in unaffected features, such as skin, hair, and eye color, hair form, hair distribution, etc.

In "The Races of Europe," I pointed out that all over central Europe different populations had been experiencing a steady rise in the cephalic index from about the 6th century A.D. onward. I attributed this to the re-emergence of genetic elements derived from pre-Neolithic populations. As farmers and herdsmen penetrated Europe, the hunters and gatherers withdrew to the forests and mountains. Eventually the latter were assimilated as a socially submerged element in the general population. The historic increase in brachycephaly was thus due to the selective value of that particular head form as their conquerors killed themselves off in war or were selectively reduced by emigration.

Weidenreich has recently taken the position that brachycephalization is a progressive evolutionary step. He claims that it produces a more efficient container for the brain than a long, narrow skull; that a round head is best suited for the requirements of the erect posture.[5] Whether or not this thesis is mechanically correct, Weidenreich has done a service in lending his support to the manifest conclusion that European brachycephaly is endemic and not of recent derivation from other continents. That in an isolated population it may be dominant is one of our present subjects of investigation.

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161 The present material is suited for such a study. The land of the tribal Ghegs is a small country, little more than 3500 miles square. Its population probably runs to about 250,000, of whom 90,000 may be Catholics and 160,000 Moslems.[6] In 1930 we were told that the population of Mirdita was about 11,000—all Catholic; that of Puka 14,000, of whom 8000 were Moslems and 6000 Catholics. These figures are

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[5] Weidenreich, 1945.

[6] Since this monograph was written it has become fashionable in America to employ the more correct form, *Muslim*. It would have been pleasant if this change could have been made here and throughout the text. However, so much time has been spent, and so many corrections have been made, that I beg the readers' indulgence for retaining the *o* and *e* in place‡

‡ [contin on p 4b -- Analyst]

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161 probably too low. The 1927 census reported 814,485 persons in Albania; the 1930 census raised the figure to 1,003,124, of whom 104,184 were Catholics. The 1930 census gives the population density for Albania as 36.5 per square kilometer, or 102 per square mile. The mountain Gheg country, newly divided into 3 provinces without regard to tribal boundaries, was said to have 100 inhabitants per square mile in Dibra province, 75 in Scutari province, and 64 in Kossovo province.

In 1930 the land area of Albania was 10,600 square miles. With a population of 1,003.124 the density was thus 94 per square mile, not 102. If we subtract 8 from each of the other figures, we obtain the following corrections: Dibra—92, Scutari—67, Kossovo—56. This can be checked by means of the Catholic figures. Of the 104,000 Catholics at least 14,000 live in cities, leaving no more than 90,000 on tribal lands. Tribal lands exclusively Catholic cover ca. 1225 square miles; those occupied by Catholics and Moslems together about 440 square miles. Thus 1450 square miles may be considered Catholic country, and with a population of 90,000 this yields 62 persons per square mile, which accords with the corrected census figure. Striking a point between the Dibra and Kossovo figures we obtain about 70 per square mile for Moslem lands, which cover about 2300 square miles. This yields a population of about 160,000. One hundred and sixty plus 90 equals 250. Hence our estimate of a total Gheg population of 250,000.[6]

124 Our series of nearly 1100 men may represent one per cent of the adult male total, a large sample, compared to other national surveys of equal detail. It was drawn from all tribes and from every part of each tribe. It includes chief elders, gendarmes, farmers, what artisans there are, *hodjas*, and in short a complete cross section of the population, both regionally in most tribes, and in regard to differentiations based on rank and occupation. We did not measure

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of *u* and *i*. Actually, Arabic vowels are few, rudimentary, and unindicated in ordinary writing. Semantically, they are of less importance than in Turkish, whence the form *Moslem*, and it was the Turks who converted the seventy per cent of the Albanians who are Muslims. Few of them, I suspect, will object to the book on these grounds.

[6] Almagià, 1932; *Arbenia*, June 1, 1930, for census figures; *National Catholic Almanac*, 1940, p. 93.

124 mountain men who had come down to the cities; we went into the mountains and measured them in their homes.

121 Beside the anthropometric data itself we have taken some trouble to describe and discuss the natural and social environments in which our subjects lived. This material is as essential for our study as the measurements and observations on the men themselves. It not only describes the physico-chemical influences that bear on the growing organisms, but also designates their systems of mating, which are of prime importance to anyone interested in genetic problems. Furthermore, and as we shall see this is also of primary importance, it reveals the culturally controlled mechanical influences which literally "shape our ends"; the techniques of cradling babies while their heads are still plastic, and which the Albanian mountaineers, like other peoples in southeastern Europe and western Asia, employ.

In the following chapters we shall not attempt to cover every detail of Gheg civilization. This is not a work of ethnography, but one of somatology. We are interested in the main outline of the culture as a whole and only in those details that bear specifically on our problem: who are the Ghegs and how did they acquire their present anatomical characteristics?

000 One further act of definition is necessary: to place our sample on the scale of time. In describing any culture, the ethnographer must

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[7] Chapple and Coon, 1942, front end paper.

000 set his scene at some specific point in time. All cultures change, either in complexity or merely in detail, and even those which move the most slowly vary enough in a few years to make this step necessary. Such a specific time locus is called the "ethnographic present."[7]

121 For the purposes of this study the ethnographic present should be the time between the date at which the majority of our anthropometric subjects were conceived and that at which they had reached adult physical form. Thus both heredity and environment will be [124] given due attention. The 1063 men in our series ranged from 18 years of age to senility, with the great majority between 25 and 49. The mean was 39.4 years. We did our measuring in 1929–30. The mean date of birth was thus 1890, with a range of from 1860 or earlier to 1911. If we add 20 years for the maturation process the range rises from about 1880 to the date of measuring, with its mean at 1910.

Our ethnographic present is therefore a time band 2 decades wide, concentrated in the period 1890–1910. At this time the mountain tribal areas of Ghegnia formed, like the rest of Albania, part of the Turkish Empire, and the heroic age of family feuds and intertribal warfare was in full swing. In the cultural descriptions given in chapter 3 on "Technology and Occupation" through 6, "Ritual Life,"[1] the reader must remember that unless otherwise specified we have reference only to this epic age.

[1] [see cat. 116, pp. 1a – 38b -- Analyst]

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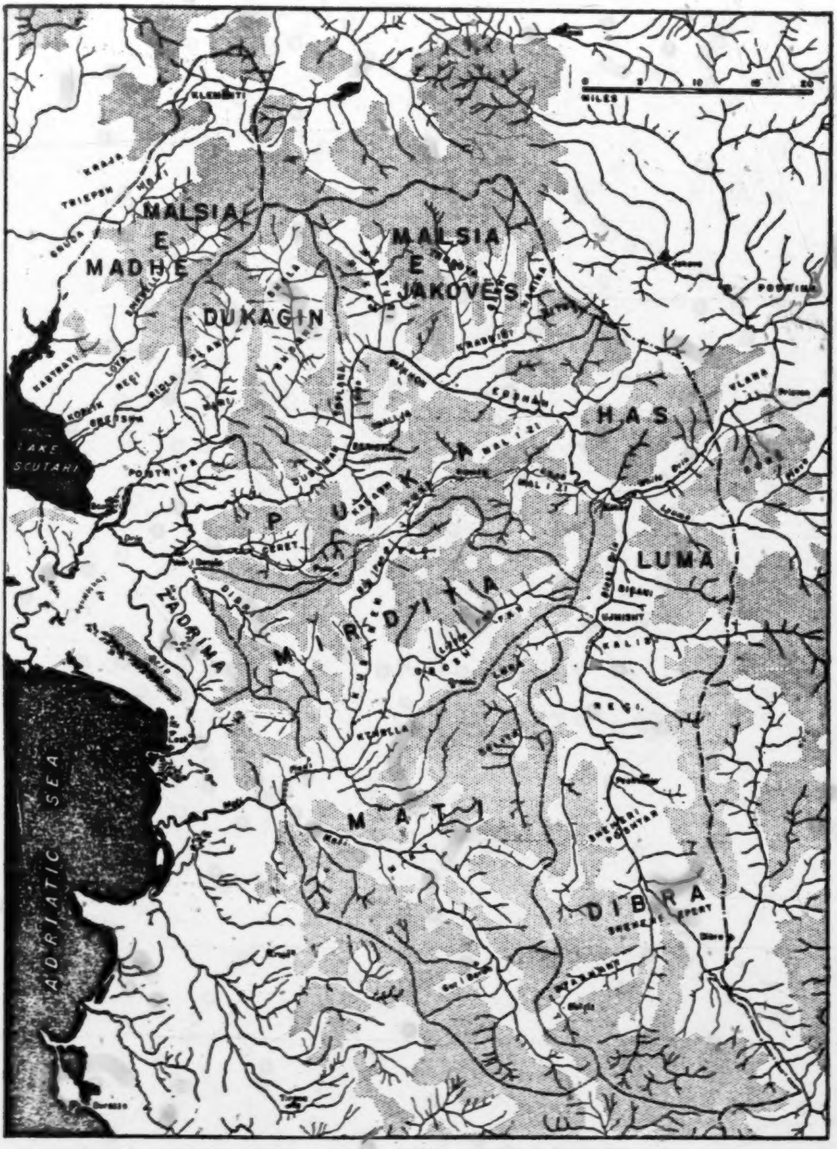
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DUKAGIN
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LAKE SCUTARI
POSTRIPA
KRASNIQI
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FIG. 1. Northern Albania—the tribal area. (Stippled area symbolizes mountain and forest, unoccupied except as seasonal pasture and source of timber.) Scale, 1: 250,000.

000 LAND OF THE HIGHLAND GHEGS

LAND OF THE HIGHLAND GHEGS

101 THE people who form the object of this study are the mountaineers who inhabit the Dinaric mountain chain on either side of the gorge cut by the river Drin on its way from the Serbian plain to the Adriatic. Most of their country lies inside the political boundaries of Albania, but parts of it have belonged to Yugoslavia for the past third of a century. [197] They speak the northern of the 2 Albanian languages, or dialects,[1] Gheg. They are not, however, the only Gheg speakers. There are [121] Lowland as well as Highland Ghegs. The present study concerns only the latter. The reason why they were specially chosen is that they still preserved, in 1929, a full tribal system of social organization, something very rare in Europe. This has one critical advantage: rules of preferential mating are definite, and are still observed. We know not only who marries whom, but we may also be sure that the same system has been going on for many generations. For a study of human genetics this material has obvious advantages.

The Highland Ghegs who form the object of our investigation belonged to 10 tribes, shown on figure 1.[2] These are Malsia e Madhe, Dukagin, Malsia e Jakovës, Has, Luma, Puka, Mirdita, Zadrima, Mati, and Dibra. Before 1913 all of the tribes, except Dukagin, which now touch Yugoslavia extended a certain distance into the present territory of that country. On parts of the northern border the overlap is an old one. Many of the Montenegrin gentes admit descent from Albanian families, and one finds every stage of linguistic and cultural assimilation between the 2 ethnic 728 101 units. Just north of Scutari, however, several fully Albanian villages were handed over to Serbia after the Balkan War, and this caused both economic and political distress. Farther east, from Peia to Dibra, the boundary commission which laid out the border between the 2 countries at that time gave the Yugoslavs all of the strategic positions, and all of the market

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[1] Gheg and Tosk in extreme dialectic forms are mutually incomprehensible. It would be hard to state definitely whether they are closely related languages or dialects of one language. Each has numerous local

[1] [see cat. 116, p.6--Analyst]

[2] [cont. p. 7c--Analyst]

[728] 101 towns along the Serbo-Albanian border which served as an economic outlet for both peoples.

This ethnic border is far from clear-cut. Several whole tribes of Ghegs live on the Kossovo plain, along with villages of Serbs. The ancestors of these Lowland Ghegs migrated there in the time of the Turks, after the defeat of the Tzar Dushan. These displaced Ghegs are probably descended from the highland tribes, but it would take much work to establish their exact relationships. We were unable to measure more than a few of them, and therefore shall not consider them in this study.

101 102 The Lowland Ghegs of Albania, who equally eluded our calipers, occupy the country from the tribal regions eastward[1] to the Adriatic and southward to the river Shkumbi, the traditional frontier between Ghegnia and Toskeria. Many of the Tosks are Greek Orthodox Christians. The Ghegs who are Christians are Roman Catholics. The majority of both divisions is Moslem. The most solidly Moslem part of Albania is the central region, in both Ghegnia and Toskeria, where the landscape is the least rugged. Both brands of Christianity lived through the Turkish regime most successfully in the mountains. In the south, beside the Tosks, are thousands of Vlachs—shepherds speaking Rumanian as their native tongue—and Bulgars. The Epirote borderland cuts through an area where Greek and Albanian villages overlap, causing trouble.

Throughout Albania one finds camps of nomadic gypsies, living by their traditional trades of metal-working, fortune-telling, horse-trading, etc. In the larger cities there is always a gypsy quarter, whose inhabitants also serve as musicians and prostitutes. In the Gheg country, however, there is no room for gypsy camps or quarters, and the only gypsies which I saw or heard of there were a single individual in Bicaj, and another in Kukës, both in the tribe of Luma.

[197] subdivisions. The official language of Albania is based on the southern Gheg dialect spoken in the city of Elbasan.

[1] [author must mean westward - Analyst]

133 The country of the Highland Ghegs is entirely mountainous. Although on the map its length is 75 miles and its width 55, these dimensions fail to convey the vertical distance. The trails go up and down and all around, climbing, twisting, and turning. In 1929 it took as long to go the length of the Gheg highlands by available means of travel as it did to cross the United States by rail. To an Albanian, Shala is as far from Dibra as, to an American, San Francisco is from Boston.

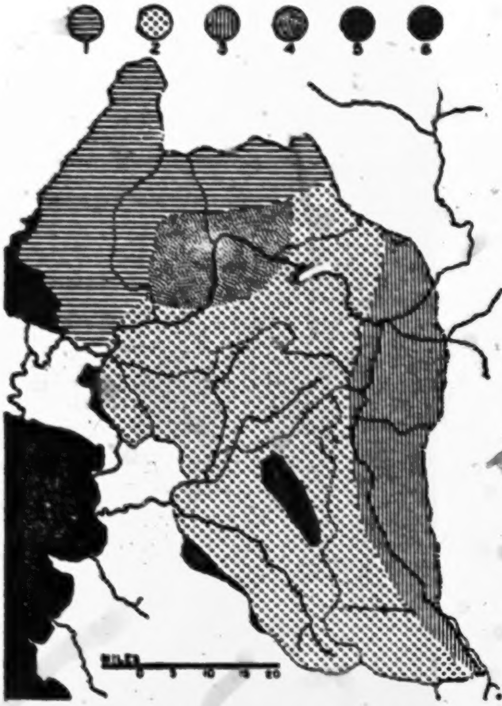

FIG. 2. Three main geological regions in Ghegnia. 1–*Mesozoic limestone;* 2–*Serpentine highland;* 3–*Metamorphosed Triassic and Upper Palaeozoic rocks;* 4–*Intense folding (Mesozoic-Eocene);* 5–*Tertiary basin;* 6–*Eocene flysch.* (Almagià, 1932, pp. 464–73, map on p. 467, "after Nowack.")

A concentrated jumble of snow-covered peaks, rising to 7000- and 8000-foot heights, the mountains of Ghegnia follow no simple system of parallel ranges and valleys, but instead form a knot through which the river Drin has cut a passage in its tumultuous journey from the plain of Kossovo to the Adriatic Sea. In the walls of the Drin gorge the travel-

133 er can see an impressive record of geological change—layer after layer of sedimentary rocks, twisted and upheaved like a slice of marble cake.

Although the systematic geology of this entire region remains to be studied, enough is known of it for our immediate purpose. Figure 2 shows 3[1] main geological regions in Ghegnia. The first is the Mesozoic limestone mountains of Malsia e Madhe and parts of Dukagin and Malsia e Jakovës. This is a continuation of the bare rocky landscape so characteristic of Montenegro, which, north of Lake Scutari, reaches the sea in a succession of drowned valleys, the greatest of which is the Gulf of Kotor. Here the topsoil is thin, while alluvium is almost lacking in the stream beds. No trees crown the slopes, white in summer and winter alike from the alternate exposure of lime and snow. In the bend of the Drin the smaller area of intense folding is likewise mostly limestone, covering part of Dukagin, the Nikaj-and Merturi sections of Malsia e Jakovës, and the Buxhon and Berisha *bairaks* (see p. 30) of Puka. In the country so far designated, most of which is north of the Drin, geological conditions resemble those found immediately north of the border.

The second zone is one of igneous rocks, composed mainly of serpentine and gabbro. This zone covers all of Mirdita, most of Zadrima, Mati, Puka, and Has, and parts of Dibra and Malsia e Jakovës. In this region limestone is so scarce that few people can afford to build stone houses, owing to the lack of mortar. From the dietary standpoint one must understand the importance of this contrast between the northern geological zone, where the water is permeated with lime, and the central, where it is lime-free. This takes on significance because all foods consumed are locally raised—the fodder, the grains, the milk, and the meat.

The third region is the eastern zone, including half of Has, all of Luma, and the greater part of Puka. This is composed of metamorphic Triassic and Upper Palaeozoic deposits, deeply eroded, with steep slopes and rich alluvial bottoms. From the dietary standpoint, it lies intermediate between the northern and the central regions.

Through these mountain masses, composed of different kinds of rocks laid down and up-

[1] [See Cat 116, pp 8a and 35 c -- Analyst]

133 heaved at different periods, flow its 2 rivers and their tributaries. These are the Drin and the Mati. By studying them one can arrive most readily at a knowledge of the tribal geography of Ghegnia.

East of Kukës there are 2 Drins, White and Black. The White Drin carries off the water from the eastward slope of the Peia or Pesh region in Montenegro, then flows southward to the Albanian border, where it turns west. A short but swift confluent flows westward under the bridges and flourmills of the city of Prizren. The Black Drin is the outlet for Lake Ochrida, south of Gheg territory. It flows northward in a nearly straight line through the Dibra valley, past the towns of Big Dibra and Little Dibra (Peshkopia). As it flows northward the valley grows narrow, and in places becomes a gorge, which opens out again before the river reaches Kukës.

At Kukës the 2 branches meet. From this point on, the slope of the river bed is great, and the water rushes down, foaming and leaping, through its canyon-like channel until it reaches the lowlands, where it divides into 2 channels. One flows into Lake Scutari, which in turn empties into the sea. The other goes directly into the Adriatic. Except for the last few miles of its passage, the Drin is too swift for navigation. Its possibilities for hydroelectric power are great.

The other river, the Mati, flows into the sea a short distance south of Lesh. It drains the tribal lands of Mati, and most of Mirdita. It too is swift and unnavigable, and in winter and spring often impossible to ford.

133
101 These rivers and their watersheds form the usual boundaries between tribes. Dibra and Mati form the drainages of the Black Drin and Mati rivers, respectively; and the watershed between these rivers is their boundary. The White Drin, in Yugoslavia, is the boundary between Has and the lowland tribe of Podrima; in both countries it divides Has from Luma; and in Albania alone, the combined Drin divides Has from Puka, Malsia e Jakovës from Puka, Dukagin from Puka, and Malsia e Madhe from Puka and Zadrima. The northern branch of the Mati, the Fan, which is in turn divided into the Little Fan and the Big Fan,

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* Semple, 1931, chap. 5.

133 101 drains Mirdita, except for the *bairak* of Spaç, the northwestern finger of which forms part of the Drin system. With this same exception, the watershed between the Drin and the 2 Fans is the boundary between Puka and Mirdita. The continuation of the watershed between Mati and Dibra again separates, farther north, Mirdita from Luma. Mati and Mirdita, and Dibra and Luma east of the Black Drin, are parted by deep valleys, running laterally, cut on opposite sides of the river.

133 These rivers serve more often as tribal boundaries than as routes of travel. Their banks are so steep that the roads usually follow the crests and shoulders of the mountains, only dipping down into the valleys where it is necessary to cross them. Their waters are so swift that only in rare spots can they be navigated. All in all, they are barriers to travel and communication.

132 It is a rule long known to geographers that in the Mediterranean basin, lands lying on the western slopes of peripheral land masses receive more rain than those on the east.[2] The higher the mountains flanking the coast, the more the rain. Ghegnia and Montenegro have the heaviest rainfall of any Mediterranean countries. The Adriatic coast, from Lesh up to Dubrovnik, receives well over 60 inches of rain a year; and all of Ghegnia, back from the coast, gets between 60 and 40 inches, with the total decreasing to the east.

This is not all winter rain. It may rain any month of the year, and the summer rainfall totals anywhere from 4 to 8 inches, enough to permit the cultivation of maize by dry farming. This fact alone takes the Gheg highlands out of the Mediterranean climate area. The winter rain, which begins to fall in September, becomes snow at the higher altitudes. Only in the highest valleys and on the peaks does it last out the winter. Elsewhere a succession of snowfalls and thaws renders this region as unpleasant as New England in early spring.

The temperature again prohibits the growth of many Mediterranean crops, such as the fig and olive, which soon disappear as one leaves the coast. All of the uplands receive severe winter frosts, and on the border of the Kossovo plain the climate becomes continental.

137 The natural vegetation of the Gheg highlands has been preserved more completely than that of almost any other Mediterranean border country, thanks to the difficulty of travel and transportation. North of the Drin[1] in the limestone area, the landscape is mostly bare, since the soil is too thin to support a forest. The igneous zone, however, is heavily forested, with oak succeeded by groves of enormous beech trees, some reaching 10 feet in diameter. At one point on the road between Puka and Kukës the road passes through such a forest, where the traveler used to see woodsmen hewing monoxylic table tops, for sale in Scutari, out of these giant trunks. Up beyond the level of beeches one meets pine, and these trees too are of great size, comparable to the forest, on similar soil, in the middle of Corsica.

While the peaks of Shala are forever white, those of Mal i Zi, the Black Mountain, to the south are forever dark with the coniferous cover. Only in a few places south of the Drin do the peaks emerge above the tree line. Over in the metamorphosed zone to the east one finds more beech and pine, and other broadleaf species such as elms and plane trees, while cypresses have been planted in Moslem cemeteries and mosque areas.

[1] [for map, see cat. 116, p. 6 -- Analyst]

136 As might be expected the mountains and forests of this little-developed country still harbor a number of dangerous wild animals. The lion of Homeric times is gone, but the bear, the wolf, and the wild boar remain. Deer graze on the high mountain slopes, and in the forests, but the Ghegs will not kill them. The only wild animals of any economic importance are the various members of the weasel family, particularly martens, which a number of mountaineers trap for fur. Otherwise the fauna is a nuisance, since bears and wolves will steal sheep and kill cattle, and flocks need constant guarding by one or more men with rifles and a number of ferocious dogs.

131 It is in this environment[1] which must have changed but little since Roman and even earlier times, that the tribal Ghegs have survived until the present day, retaining a language and customs which carry them back to the Iron Age. The land forms, the climate, the geographical position away from main routes of travel and migration, all combine to make the mountains and forests of Ghegnia one of the most marginal and isolated regions of Europe. It is a true refuge area, comparable to the Caucasus and the western Himalayan reaches, the Appalachians, and the Ozarks.

[1] [See cat. 116, pp. 8a - 10b --Analyst]

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TECHNOLOGY AND OCCUPATION:
THE ECONOMICS OF AN ISOLATED SOCIETY

121 HABERLANDT, Baron Nopcsa, and others have written learnedly and in detail about the material culture of the Gheg mountaineers.[1] [1] It is not my intention to duplicate their work. What I have to say about technology in this place is written for one purpose only, to elucidate the problem of human genetics in northern Albania. First of all, we shall examine the anthropometric series itself, since that is the source of our information on the Gheg phenotype (fig. 12).[2] The 124 measurement blanks contain, besides the anthropometric and observational constants, the following information for each subject: serial number, sex, date, place measured, age, tribe, *bairak*, father's group, mother's group, number of wives belonging to father, number of children of each sex per wife, occupation, office or rank, religion, kinship with other members of series, and photographic reel and frame number.

We measured 1102 persons. Of these, 1058 were tribesmen both of whose parents had come from the same tribe as the subject. Eleven resulted from intertribal marriages. Thirty-three others remain to be accounted for. Nine were sons of Has fathers and Podrima mothers, 4 were Podrima men. These 13 were living in Has tribal territory, on the 101 Yugoslav side of the border. Podrima is one of the Albanian tribes situated on the plain of Kossovo, wholly in Yugoslav territory. No

[1] [see cat. 121, p. 11 d -- Analyst]

[2] [see cat 116, p. 112 -- Analyst]

101 intermarriages were recorded between Podrima people and Has tribesmen from the Albanian side of the border.

124 The 20 others were outsiders in Albanian-controlled Gheg tribal territory. Sixteen came from the large market town of Big Dibra (Dibra e Madhe to the Albanians, Debar to the Serbs) in Yugoslavia, which contains a mixed population of Albanians, Serbs, and a few Turks. One was a Serbian-speaking Moslem from the alien *bairak* of Gorë which forms part of the tribe of Luma; his home lay also beyond the border. Another was an Albanian from the town of Jakova. Two others came from inside Ghegnia but outside the tribal territory—from Krujë and Elbasan, respectively.

These 20 men were all first-generation immigrants. There was no older generation like them. I measured none of their sons, and thus this particular immigration had had no effect on our series. All of them were specialists in some kind of technology. Through the study of the data on occupations given in our tabulations we can discover the exact situation of these people.

124
463 In our series of 1102 men, 36 occupations were listed. These may be grouped into 7 classes: extractive, processing, services, transport, trade, political, and religious. Their distribution among the 10 tribes and 44 "others" is as follows:

[1] [See p. 11d - Analyst]

8: Coon E-5 (1929-30; 46-48) 1950 EGl Albania EGl
Highland Ghegs

124
463

	Total	Extr.	Proc.	Serv.	Trans.	Trade	Pol.	Rel.
MeM	105	101		1		2	1	
Duk	106	103					3	
MeJ	104	87		2	1	7	7	
Has	114	102	11					1
Lum	109	79		1		2	25	2
Puk	102	87		3		1	11	
Mir	101	89	4	1		1	6	
Zad	105	104					1	
Mat	104	80	2	2			20	
Dib	108	75	7		3	11	9	3
Others	44	23	7	2		7	4	1
	1102	930	31	12	4	31	87	7

[121] [1] Haberlandt, 1917; Nopcsa, 1925; Start, 1939; Traeger, 1904. 1

1 [pertains to text, cat. 116, p. 11 b --Analyst]

124
463 *Extractive*: Of the 930 men so listed, 926 were farmers, 3 shepherds, one a woodcutter. The woodcutter and one shepherd came from Luma, the other shepherd from Mirdita. Eighty-five per cent of all inhabitants of Ghegnia measured are farmers, 88 per cent of all tribesmen.

Processing: Twelve occupations are listed under processing: charcoal burner, blacksmith, tinsmith, carpenter, saddler, hatter, tailor, shoemaker, butcher, baker, cook, and pastry cook.

The 2 charcoal burners, the smith, and the carpenter were Mirdites. Their occupations [391] are mutually dependent. As a rule iron goods are imported, and distributed by merchants in the towns. Axe heads, sickles, billhooks, and other tools of familiar Iron Age shapes are produced by craftsmen in the larger centers, such as Scutari, for the mountain trade. Minor metallurgy is usually carried on by gypsies.

The other specialists fall into a different class. None were mountain men, except one cook and one baker, both natives of Mati, who worked in the new prefecture headquarters established at Bureli, within Mati territory, by King Zog. They were there because of the impact of the new central government on the mountain tribes. Neither of these men had long been professionals.

The tinsmith, the saddler, and the hatter were natives of Peshkopia, the principal town of Dibra. Of the 3 tailors in this town, one was a native, one had come from Big Dibra, and the third from Jakova. The butcher, one of the 2 bakers, and the cook measured in Peshkopia were Big Dibra men. The pastry cook worked in Kukës, in Luma. This leaves 11 bakers. These men all came from Gonaj and neighboring villages in Has, within walking distance of Prizren. Baking is their traditional hereditary occupation. They get their flour from the gristmills of Prizren and sell their bread in that city. Many of these Hasi bakers migrate to distant cities to work. Mr. Anthony Stevens, our guide, and an employee of the U. S. State Department, began life as one of these bakers; as a boy he went to Cincinnati to work in a bakery.

It can be seen that within Gheg tribal territory processing techniques are practised almost exclusively in the eastern borderlands.

361 Peshkopia has grown rapidly because the international boundary commission of 1913 cut off the Dibra mountaineers from their natural market town of Big Dibra. Hence many of the Big Dibra men moved to Peshkopia, which is just inside Albania. In the same way Prizren was cut off from the Luma people, who built up Kukës; Jakova from the Malsia e Jakovës men, who also go to Kukës. On the western side no such disturbance has taken place. Scutari, Lesh, and Kruja now, as for centuries past, serve as market towns for the mountain people.

124
463 *Services*: Only 12 men are listed under "services." Two of these are innkeepers. One is a Puka man, host at Rrap, his native place. The other is an outsider, a Kruja man, whose inn is at Gur i Bardh in Mati. Kruja men specialize in innkeeping, and in the heyday of Ottoman power might be found all over the Turkish Empire, including Asia Minor. These *hanjis* marry in Kruja, and do not mix with the populations in the regions in which they do their business.

Three men were restaurant-keepers: one Koplik man, whose shop was presumably in Scutari, a Luma man, and a Malsia e Jakovës man, with shops in Kukës. The barber was a Malsia e Jakovës man, working in Kukës. Of the 2 waiters, one was a local man serving the gendarmes in their post at Puka, the other a Big Dibra man working in the hotel in Peshkopia, a new institution. Of the 3 listed as servants, all were local. One served the prefect and another the teacher in the new government center in Bureli. The third worked for a priest in Mirdita.

Of the 12 "services" listings, 9 can be accounted for as a result of recent political events.

[494] *Transport*: Transportation in Ghegnia in 1929 meant but one thing—the services of *kiragis*, those incredibly tough horse-drivers who would take you and your goods anywhere, and try to raise the price on the road, once you were at their mercy. Three out of 4 came from Dibra, and one from Malsia e Jakovës. As far as I know, all *kiragis*, like all *hanjis*, are Moslems.

[441] *Trade*: All merchants in the mountain country are shopkeepers; there are no large or complex commercial institutions. Of the 31 shop-

124 463 keepers measured, 18 were in Peshkopia. Of these, 11 were locals, and 7 Big Dibra immigrants. Six shopkeepers were measured in Kukës, all Malsia e Jakovës men; 2 in Bicaj, a Luma village, were local. One Malsia e Jakovës man was measured in his own shop in Kolgecs, a local town. Thus 25 out of the 31 shopkeepers came from the eastern borderlands, from big towns or their neighborhood. The situation is the same as with the craftsmen whose goods they sell.

Four shopkeepers remain: 2 are from Malsia e Madhe, one with his shop in Scutari, the other at home. Of the other 2, one is a local in Puka, the other a local in Mirdita. The Mirdita man, who has the only shop in that tribe, claimed that his father was an Austrian officer who begat him during World War I. This would give him a maximum possible age of 14 years at the time of measuring. He was at least 30.

TECHNOLOGY, A REVIEW

000 From the foregoing study of the non-somatological data collected in our series;[1] and from what is generally known of the material culture of the Ghegs, we can make a brief summary, keeping in mind always our main purpose, to define the economic elements in the cultural situation within which the Ghegs live.

326 391 Cutting tools are of iron. They are made by blacksmiths in the market towns in which the Ghegs do their trading. In Scutari, for example, there is a whole quarter devoted to smiths, most if not all of whom are gypsies. With hammer and tongs, a small anvil, and a pair of foot-pump bellows they forge nearly all of the metal objects needed by the mountaineers in their farming, herding, transport, and household carpentry. They make small anvils, hammers, nails, axes, adzes, knives, ploughshares, shovels, hoes, toothed sickles, billhooks, beam ties, door hinges, horseshoes, horse hobbles, chains, bits, firetongs, andirons, tripods, lighting racks, and probably other articles which have escaped our attention.[2]

326 There is no smelting in the neighborhood of Ghegnia. The iron which the smiths use is all imported. Although city blacksmiths can

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[2] Haberlandt's, Nopcsa's, and mine. The best account of this is to be found in Haberlandt, 1917, p. 90.

[1] [see cat. 116 pp. 11a - 13a -- Analyst]

326 make all of these implements out of trade iron, it is unlikely that the rural smiths, like the one measured in Mirdita, do much more than [439] horseshoeing. No one in Albania can make steel implements. Not only the material, but the finished implements themselves, must be imported, and hence they are expensive. That is why saws and augers are scarce in the mountains, where almost the only steel tools seen are files, useful for sharpening iron tools and for woodworking.

322 This explains the primitive nature of Gheg woodworking. Most wooden objects which require special tools or skills are bought in the market towns. Here 3 kinds of woodworking specialists carry on their crafts: the coopers, turners, and joiners. The coopers make tubs and buckets for kitchen use, including churns, butter firkins, and casks for storing grain. The material of which these are made is pear wood. The turner cuts out on his lathe various parts for looms, to be set up later; bobbins, spools, reelers, winders, and spool frames. The joiners provide the mountaineers with solid, ornately decorated chests of pine wood, as well as cradles in which to carry their babies, of which more later.

The Gheg at home in his mountains is a jack-of-all-trades. He may not be able to manufacture the special objects listed above, but he can adze out beams for his house, put together a new plough during the winter months when there is little work out of doors, or build one of his massive chairs. Professional carpenters are rare, although some men may show more skill in this than others.

372 In Ghegnia, as in most of the primitive world known to anthropologists, it is the custom not to let fires go out, for it is hard to start a new one. Sometimes a householder will walk several miles to borrow a glowing coal from a neighbor. In 1929 and 1930 most of the Ghegs were making fire with flint and steel or with old-fashioned dry-wick lighters. They did this slyly, and in my presence only when they could not borrow a match from me. King Zog had sold the match monopoly to the Swedish match trust, which had promptly set a price of 5 cents a box on penny matches. The king had at the same time prohibited the use of flint

372 and steel or lighters. This left the mountaineers in an unenviable position—they could not afford matches nor legally start fires by other means. Outside the market towns, however, their illegal actions passed unnoticed.

342 Several authorities, particularly Nopcsa, have concerned themselves with north Albanian house types. These are usually divided, on the basis of ground plan, room arrangement, and architecture into a number of classes: simple one-roomed huts, usually employed in the summer only by shepherds on high mountain pastures; 2-roomed, one-storied houses, with one room for animals and the other for the family; the so-called veranda houses, with a wooden front porch and columns, reminiscent of the Homeric hall; and finally the *kulla* or defensible stronghold (fig. 8, *a*).[1]

The 2-roomed house seems to be basic in the mountains, although historically the more complicated structures have made these edifices rare. The veranda house, although old in the Mediterranean, was apparently late to reach this refuge area, being spread with Islam. The *kulla*, or stronghold, is said to have come at the same time as the veranda house. Both reached Kastrati and Shala about 1850, being introduced by one man who had lived in Istanbul, Liho Čuni.

For building materials the Ghegs are strictly limited to local supplies, since transportation [135] is so difficult. In the region designated on figure 2 as "serpentine highland,"[2] the stone is hard to cut, and unsuited for fine masonry except in the hands of experts. Furthermore, lime is found in few places only, and it is usually impossible to make mortar without many tedious trips with pack-horses or donkeys. In this region many of the houses are made of wood, with squared logs laid on each other and held in place by vertical or diagonal crosspieces. Others are made of wattle: vertical poles side by side, with flexible wands woven in and out between them. At times this wattling is bare, but usually it is covered with some sort of plaster or mud.

[333] Where there is plenty of suitable stone and lime, these materials are used. The simpler, poorer houses are of dry masonry, but the majority are built with mortar. Roofing material varies from thatch to shakes, slate, and tile. Years ago thatch was much more com-

[1] [See cat. 116, p. 108 -- Analyst]

[2] [See cat. 116, p. 8a -- Analyst]

342 monly used than at present. The shift from wheat to maize as staple cereal deprived the farmers in many parts of Albania of roofing material.

[353] The interiors of most houses are quite bare, with no carpets on the hewn plank floors, and [354] little decoration on the walls. In the older houses a fireplace covers about 10 square feet of floor area, and the smoke finds its way out through the thatch or roof tiles. In so doing, it cures meats hung in a rack above the fire, particularly in Catholic houses where pork is preserved for the winter.

The introduction of the *kulla* brought with it some drastic architectural innovations. The *kulla* is a 3-storied square tower, built with one purpose in mind—defense. Nopcsa finds a high correlation between the incidence of *kullas* in different villages and *bairaks*, and that of death by violence. The lower floor of the *kulla* is for the shelter of animals. The second and third are for habitation. One door opens into the stable below, a second, up a flight of bare steps, to the living quarters.

With a multi-storied structure something had to be done about smoke. Hence fireplaces were built one above the other, and a high [514] chimney ensured draft. One of the principal troubles with the old-fashioned house was its lack of a toilet. The feuding Gheg, attending the needs of nature in a corn field of a frosty morning, made an excellent target to his enemies hiding in ambush, and the feudal code contained no sporting rules to outlaw this easy shot. The *kulla*-builders therefore constructed an overhanging enclosed balcony of masonry, to serve as "W. C." In the conflict between sanitation and safety, safety won. The drain hole is made crooked to prevent pot shots from below. Since there are few windows, and these are built more for gunplay than for light or ventilation, a strong draft usually rushes up the drain hole. Down below in a heap against the wall the refuse accumulates, and were it not for the healthy mountain climate and the hardihood of the mountaineers, epidemics would be commoner than they are.

Gheg houses have both a social and an economic implication. They are usually large, and accommodate an extended family and its animals. Serving for defense, they reflect the

342 [562] local independence of the families within them. In the *kullas*, women are placed on the second floor, men on top; or else the women will live in a nearby unfortified house, while the men take refuge in the *kulla*. This reflects the inviolability of women in the local feuding law.

333 *Kulla*-building[1] requires the skill of professionals. All stones are squared, and carefully set in mortar. The fireplaces and chimneys must be properly aligned and made to draw. The great height of the walls requires scaffolding. Nopcsa[3] says that they are built by itinerant masons, and that in 1908 they cost between 440 and 660 crowns (110–165 dollars). I was told several times when I asked that the *kullas* were built by masons from Dibra,[4] who also build them in Montenegro, Bosnia, and elsewhere in Yugoslavia. Exactly where in Dibra these masons come from I do not know. I have never seen one at work, nor did any appear in our series.

354 These houses, of whatever type, are heated by wood, which at the same time cooks the meals. In most of the region there is plenty of firewood, but in the northern limestone region it is scarce and must be sought afar. The mountaineers earn a little spare cash by carrying loads of firewood down to the market towns to sell.

In many houses in 1929 a primitive form of illumination was still employed. When it grew dark the host would lay a number of pine splinters in several iron racks, hanging from the roof, and light them. The oil in the wood would provide enough light to see by, but hardly enough for reading. In other houses, however, they used candles, and in still others oil lamps. Kerosene has been packed into this country in square 5-gallon tins for some time, and the tins themselves are as much sought after as their contents.

291 Gheg clothing has received even more attention than their housing. The costumes are picturesque, and make fine collections. They vary from tribe to tribe, *bairak* to *bairak*, and in some cases between villages. After six months of travel over the mountains I was able to tell where a man came from in many cases by the cut of his jacket, the color of his

[1] [see cat. 11b, p. 14 b -- Analyst]

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[3] Nopcsa, 1925, p. 62.

291 trousers, the shape of his cap, and particularly by the design on his stockings. If after 6 months a foreigner had reached this threshold of discrimination, a native mountaineer with good eyesight could identify a stranger as far as he could see him, just as easily as a modern boy can tell the make of a car or airplane at a glance. This habit of wearing one's insignia so conspicuously has a very definite meaning. [181] The man is proud of his family and native place, and defiant. His desire to be identified is greater than his fear of death. He does not go far from home unless his mission is a serious one.

The man's costume starts with a brimless felt cap (*frontispiece*)[1] either conical or flat on top; often he wears a kerchief around it like a thin turban, or neckcloth. The upper part of his body is covered with a woolen jacket, with sleeves and some kind of collar, often sailor-fashion. As a rule he is shirtless. From waist to ankle he wears a pair of woolen breeches, usually skin-tight on the legs, and with a slight fullness in the seat in some regions which reflects the influence of the Turkish baggy pants. He goes without underdrawers. If wealthy, he may also wear an ornate sleeveless waistcoat. He usually sports some kind of wide cummerbund, or belt. His feet are shod in opingas, or rawhide buskins, the common primitive European footgear found not only in the Balkans but in Russia, Ireland, and other places where tradition is strong enough and shoes expensive enough to preserve this ancient homemade shoe type. In 1929 the poorer Ghegs were wearing pieces of automobile tire in place of opingas, and it gave one a start to see a fresh section of Goodyear or Michelin track on a mountain path 18 inches wide. At the same time the wealthier were wearing western manufactured shoes.

Both men and women wear stockings, knit by the women, which bear the family design as clearly as a Scottish tartan. I have seen many men, however, who had none. The women's dress varies from place to place, but is basically a combination of a full bell-like skirt, reminding one of a Cretan goddess's lower garment, surmounted by a full blouse or bodice. Add to that a headcloth or shawl, and much jewelry,

[1] [See cat 16, facing title page --Analyst]

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[4] This is confirmed by Bishop Fan Noli.

291 which is bought from silversmiths in the town, and the woman is clothed.

These costumes are undoubtedly ancient. Some of their elements may be traced back to the early Mediterranean, others to the central European Iron Age. However, the Ghegs themselves do not make all parts of them, but carry on the tradition by demand, like the Crow Indians for whom Stetson has, for decades, been manufacturing a special kind of hat.

283 The basic cloth is woven at home. The farmer gives his wife the necessary wool from his sheep, both white and black. She cards it with a homemade device, either a flick bow or a nail-studded card, and spins it. Her spinning kit consists of a distaff, a spindle, and a basket. Holding the distaff in one hand, she twists the wool with the other, and winds it onto the spindle in the basket. Whenever she has nothing else to do, or when she is walking along the trail, the Albanian housewife dutifully spins, and her spinning has soon become a reflex action, like knitting or bead-telling.

286 When she has enough wool, she begins weaving. The Albanian loom is an ordinary European 2-beam affair, similar to those used in the Hebrides and the Kentucky mountains. It has a wooden frame, 2 beams or rollers between which the warps are stretched, a wooden batten, and a foot-operated heddle. The bobbin, within its shuttle, is hand-thrown. The men buy all of the delicate parts of this loom in the town, from turners. The rest of it they make at home. The loom is kept mounted only while a length of cloth is being woven. When not in use the loom is taken apart and piled in a corner with other household impedimenta.

Once the cloth has been woven, it must, if intended for masculine use, be fulled. This involves keeping it wet, working it about, and
402 pounding it for several hours. The mountain-
286 eers employ an ingenious water-powered device for this purpose. Several writers have observed these mills; Nopcsa has drawn one.[5] I saw several. The fulling mill consists of an open-air wooden structure powered by an overshot water wheel. A smaller stream of water runs through a trough to wet the cloth. The wheelshaft is studded with four wooden

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[5] Nopcsa, 1925, p. 134, fig. 99.

286 402 lugs or cogs, which lift up a heavy wooden hammer and let it drop, 4 times for each revolution. Two staggered sets of cogs and 2 hammers give the cloth a constant pounding as long as it is left there.

No one seems to know who invented these mills or who makes them. When you encounter them along a stream, they are usually unattended. Apparently the wife, having woven her cloth, turns it over to her husband, who takes it to the mill to be fulled. There is no professional fuller, and each mill seems to belong to the group of kinsmen or neighbors who use it.

294 The women make their own clothing, for the most part of unfulled cloth. They also crochet the stockings, and stitch the opingas, worn by both sexes. The men, however, carry the fulled and heavily felted cloth to the market town, to a tailor who then cuts it in the traditional design of his client's native place, and sews up the pieces and embroiders the finished garment.

A number of other specialists are involved in the production of men's clothing and equipment. A special craftsman provides the quantities of braid with which jacket and trousers are adorned. Hatters, equipped with wooden molds to suit every variation of tribal taste, shape the felt caps, conical or truncated, white or black, which all mountaineers wear. Leather-workers, who are traditionally Turks, make ornate belts for the men, as well as saddles, bags, and straps. Special shoemakers make footgear for those who can afford it, although most wear the opingas which their wives produce from local hides. Most of the shoemakers are Kruja men, and this is a Kruja specialty. At Kukës we saw zebra hides on display outside several shops. These had been sent all the way from South Africa for the manufacture of opingas.

[322] As previously stated[1] wooden buckets are
made by professional coopers in towns, and
285 purchased by the mountain people, who use
them in dairying and for food storage. Baskets,
however, are local products; the country
people often bring them to town for sale.
Several villages near Scutari specialize in
basket-making, and the women, who weave

[1] [See cat. 116, p. 136 -- Analyst]

285 them, bring them to market along with embroidery.
These include not only spinning
baskets and hand-carrying baskets, but also
large osier panniers used in transport—a man
can carry one on his back, a horse, two. I believe
that the panniers are made by men.

326 Other containers include copperwork and
pottery. The coppersmiths in each town hammer
out sheets of metal into round trays,
which can be used for baking cheese dishes,
pastry, etc., or for tea and coffee service.
They also make kettles, water jugs, and washbasins.
All of these things are purchased by
the mountaineers, who now and then acquire
a European chamber-pot to use as soup tureen,
and a set of glass tumblers.

323 Three kinds of pottery find their way into
the mountaineer's household. In the Catholic
tribes, if not elsewhere, the women still make
an Iron Age vessel, of simple profile, with
handles, without slip, and decorated by incisions.
It is hand-modeled, and fired in such a
way as to give it a black surface. In the towns,
professional male potters make a porous ware
on the wheel. This is used for carrying and
storing water. Regular modern glazed pottery
is imported from Italy, and subsequently sold
in the bazaars.

251 Food preservation and storage techniques
vary between Catholics and Moslems, owing to
their differences in diet. The Catholics preserve
much pork by salting and smoking. The
men of each household will butcher as many
fat pigs as the family needs or can spare, in
the fall. They cut the belly fat into flitches
and hang it over the fire. An especial delicacy
is the *peshk*, or "fish," a long strip of lean
back-bacon, smoke-cured, which they cut in
slices and fry. Besides these whole pork pieces,
they make sausages and cure them in the same
[262] way. The Moslems as a rule eat only fresh
meat and live on mutton, whereas Catholics
eat both mutton and pork.

Both store their cereals and legumes in tubs
and bags in the house, and keep maize in
special outdoor corncribs, elevated to protect
them from rats. Very often a fierce dog will
be seen and heard, chained under the crib.
234 Both make butter from their cows' milk, and
cheese from that of sheep and goats, although
the use of the latter is much more common
000 among the Moslems. Catholics, in country fit

273 Catholics, in country fit for grape-growing, make a potent red wine, which they resinate in Homeric fashion.

The Moslems, prohibited by the Koran from wine drinking, content themselves with distilled liquors. In every neighborhood one or more Moslem families will own a copper still, complete with boiler and cooling screw, which someone once bought in Scutari or another town. Neighbors borrow these stills from time to time, as American families borrow each other's ice-cream freezers. Much of the *raki*, or raisin brandy, so produced, is home distilled, but a certain amount is carried up from the towns. Green *mastica*, a vicious local variety of absinthe, is imported only.
276 Both Catholics and Moslems smoke. While a few Moslems own *narghilehs*, most tobacco addicts smoke cigarettes. The economics of cigarette smoking is that as a rule each man grows his own tobacco, and sells what he does not consume. He has to buy cigarette paper, imported from France. He has to have some kind of a lighting device, which usually runs to expense, as previously explained (see p. 13)‡. The social aspect of smoking is that it forms a ready means of polite interaction, for men give each other cigarettes, rolling and licking them for an honored guest.

[262] 252 Since the principal food of all the mountaineers, whatever their religion, is bread, usually a tough, unleavened cornbread which will keep for weeks and grow harder and harder instead of molding, one of their principal needs is some way to grind the grain. Most houses contain mortars and pestles, and many also contain hand querns, of Roman design, which the women operate. It is probable, but not certain, that all of the millstones come from the market, since suitable stone is found in few
402 252 areas. A large part of the grain-milling, however, is done in small, water-driven mills, of which there are many. These mills, homemade except for the stones, are operated by vertical-shaft paddle wheels which are in effect primitive turbines. They save the expenditure of human muscular energy, and much time. In one place in Malsia e Jakovës, I saw another kind of mill, a pounding device which consisted of a trough-shaped log set on a pivot, and equipped with a heavy hammer at one end. Water flowed into this trough until enough had entered the lower end to tip the whole,

‡[See cut 116 p. 13b --Analyst]

252 and raise the hammer. Then when the water
402 spilled out the hammer fell, and the cycle
began again. These mills have been observed
by other authors as well.

Although they utilize water power so
cleverly and save so much effort, these 2 kinds
of mills involve no specific division of labor.
Some men may be more skillful at setting them
than others, but there are no professional mill-
builders, and no millers. Like the fulling mills[1]
they belong to the families that use them, and
256 when not in use are unattended. In the cities,
however, professional millers are to be found.
Prizren, which has an ample supply of swift
water running under the streets, is a milling
town, and the traveler walking down the
millers' street can hear the sharp ring of stone
on stone for several hundred feet. These mills
supply the needs of the bakers of Gonaj and
Zum, and feed the citizens of Prizren. Bread
from this region is of excellent quality and
mountaineers coming to market often take a
few loaves home.

264 The Ghegs eat one principal meal a day,
late in the afternoon. In the morning a Mos-
lem may take a small glass of *raki* for an eye-
opener, and eat some bread and cheese; a Cath-
olic will also break his fast. Both will munch
a cold snack on the road or in the field for
luncheon. But the time when the whole fam-
ily gets together, when honored guests are
entertained, comes when the day's work is
over. Then the women cook the food, and
[352] the men squat around the communal table.
In Moslem households the table is the only
piece of furniture in evidence, aside from the
omnipresent chests. Among the Catholics,
each house usually contains one massive beech-
wood chair, made locally, which seats the head
of the house or the guest of honor, and a num-
ber of low wooden stools.

Forks and other modern cutlery are usually absent. Mediaeval table manners are scrupulously observed, with all eating from the same dish, and with their fingers. Among the Moslems at least, the custom of passing a washbowl and jug of water with a towel before and after the meal is usual, as well as saying the Koranic grace, *bismillah*. At one meal which I attended at the house of Major Çen Eleze at Slatina, in Dibra, the table was at least 10 feet in diameter, the eaters numbered at

[1] [See pp. 16a-16b--Analysis]

264 least 15, with as many more waiting patiently for second table, and the dishes included a whole roast sheep, which the Major picked apart with his hands and distributed.

463 Professional cooks are found only in the
252 towns and in new government stations. In
265 Prizren and Scutari, many of these cooks are Turks and their dishes consist mostly of mutton with various kinds of vegetables. Personally I found this cuisine very tasty. They also make a fine *yugburt*. Pastry cooks form another special group, and concentrate on *baklava* and *kadaif*, the two honey desserts familiar to eaters in Greek restaurants in all countries. Although their products may be carried into the mountains, the pastry cooks themselves stay at home.

262 The mountaineers obtain almost all of their own food by farming and herding. Hunting provides little or none for most families, and the same is true of fishing. Along the Black Drin, just above Kukës, a few fish are sometimes caught, and welcomed in the kitchen. In Prizren, fresh river fish are sold in the market. But fish is an insignificant element in the Mountain Gheg diet. The same is true of wild vegetable products, shoots, berries, and the
594 like, collected by women. Furthermore each
261 family produces practically all of its own food, except for a little coffee and tea, and a bit of sugar and salt. Most families are too poor to afford these imported luxuries often. The significance of the absolute self-sufficiency of the Ghegs in their food supply is linked with local differences in geology, and must have a profound effect upon differences in physique attendant on diet.

241 Farming is a family affair. The man buys
[594] the iron implements which he needs in town, and makes the rest of wood. He breaks the soil with a spade, and ploughs it with oxen. As he ploughs each furrow, his wife walks behind him with a basket of seed, sowing it. Later the women will do the weeding, and the whole family comes out to reap. If the crop is wheat, they cut off each head of grain with a sickle and put the heads in a bag; if maize, they pick the ears and braid the husks for drying. They thresh small grains and beans with flails. When the tobacco leaves are ripe, the men cut them carefully and hang them on their verandas or the sides of their houses to cure.

cure. The Mountain Ghegs also grow much fruit on trees near their houses. The chief species are quinces, pears, and apples. 245

Women have charge of milking the cows [462] and making butter, curds, and cheese. Small boys are usually employed as shepherds, and 221 lead their flocks high on the mountains. In the 233 summertime many Gheg families drive their cattle up to the Alpine meadows on the mountain passes, and keep them there weeks at a time while they make butter and cheese. While on these heights they live in small temporary houses (fig. 8, *c*).[1] The people of Klementi, however, who live in high valleys, drive their flocks to the plain of Scutari every year for winter pasture.

Animal husbandry furnishes the Ghegs not 231 only with much of their food, but also with a supply of energy, for they use oxen in ploughing, and horses for travel and the transport of goods. In the wintertime they keep their cows and horses indoors, while the pigs, in Catholic regions, have special sties. Late winter and early spring is the season when food is scarce. 262 The corncrib may be empty, and only the seed corn hanging in bunches from the walls will remain untouched. The cows are dry, and the flitches of pork and bacon gone from the ceiling.

This is the time when the mountain people, 261 their tempers more and more irritable, used to turn to raiding, and while some rustled each 628 other's animals, others came down out of the mountains to steal cattle from the people on the plains. Mirdita raided Zadrima, and Mati raided the low country around Elbasan. This annual hunger was the result of a complete economic occupance of the land, coupled with an excess of births over deaths. Raiding brought in more food, but feuding caused more deaths. Between the two, plus a certain amount of emigration, the balance was reached.

Transportation in Ghegnia was, in 1929, as 491 poor as anywhere in Europe. There were a certain number of roads over which people could walk, in some places ride animals, and in most, carry goods on animal back. In a few places the trails were too steep for animals, and men had to pack in goods by pannier. The principal road, which will be described later,[2] goes from Scutari and Lesh by way of Vau i Denjës to Puka, then on to Kukës, and across

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[1] [See Cat. 116, p.108 -- Analyst

[2] [See Cat. 116 p 42a -- Analyst]

491 the border to Prizren. This was an old Roman road, and has probably not changed much in a thousand years. At Kukës another road meets it, running south along the Black Drin to Peshkopia and outside Gheg country to Lake Ochrida and Korça. Parts of this road had been widened for vehicular traffic in 1929, but the wide pieces had not been connected. It is said that both these roads have been opened for motor traffic since the Italian occupation.

Another trail goes from Tirana to Zall, thence to Gur i Bardh in Mati, through Klos, across the divide to Bulçiz in Dibra, and thence to Peshkopia. This is the principal route between the new capital and the important region to the northeast. Still another passes from Lesh to Bureli in Mati (fig. 9, *c*)1 following the banks of the Mati River. Bureli, now a prefect station, has grown important only with the Zog regime. From Bureli one can proceed to the northern Catholic country of Lura and Kthella, and thence down into Dibra, but the road is little traveled. North of the Drin a trail passes from Scutari to Shoshi over the Gur i Kutch, but in winter this is impassable. On the other side there is a road from Kukës across the Drin through the *bairaks* of Bituç, Gashi, and Krasniqi, past Merturi, into Shoshi (fig. 8, *d*). In winter this can be passed by men but not animals. Hence in wintertime no animal traffic can enter either Shoshi, or Shala which lies to its north. Before the boundary was drawn between Albania and Yugoslavia the road from Tropoya, in Gashi (Malsia e Jakovës), to Jakova was much traveled; but now this is forbidden and the people of this tribe must go to market in Kukës.

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482 As far as any considerable traffic is concerned, horseback and human back are the only methods of land transport available in Ghegnia. In a few of the flatter places, however, other means are used locally for short distances. 493 In the country around Scutari just below the mountains, the farmers use carts, particularly in Zadrima. In Luma, on the flat land at the confluence of the Drins, and in Has on the other side, carts are likewise used, as well as ox-drawn summer sleds.

491 Crossing streams is not a simple matter in Ghegnia. Most of the crossings are fjords, and very cold. I have seen men strip naked to swim across icy rivers in search of a place for

ANALYS--
1[see cat 116, p109
+196 -

491 animals to cross, and have waded up to my chin at night, with snow on either bank. When the streams are swollen, animals and men are not infrequently drowned. There is or was an old Turkish bridge across the White Drin, from Kukës to the northern bank (fig. 9, *b*)[1] Several wooden bridges crossed the Black Drin in Dibra. On the road from Krasniqi to Shoshi, I have crossed a bridge which consisted of 2 poles, one to walk on, the other a little higher and to one side, to use as a rail.

501 In a few places, ferry boats are available, which operate by the principle of changing the mooring position of the cable after each crossing, so that the power of the stream will push the boat diagonally across to the other bank. There was one such at Kukës across the Black Drin, another at Bureli over the Mati. Other observers have witnessed Ghegs crossing these streams on inflated skins, but I have never seen it.

Navigation in Ghegnia is very limited. Although Nopcsa has a picture of a man in a boat at Merturi, I have seen it only on the lower course of the Drin, between Vau i Denjës and Scutari, where special boatmen ferry passengers to town in a few hours, to save the day's march over the road. These boats are long dugout canoes, usually double. The boatman propels them by sculling, like the gondoliers of Venice. The men who run the ferries, and these boatmen on the lower Drin, are without doubt specialists, as nearly fulltime as the traffic requires. Probably not more than a dozen
494 men ply these trades. Much more numerous
463 are the *kiragis*, the professional horse-drivers who may be seen on all of the roads in Moslem country, and in some Catholic tribes as well. The *kiragis* in our series were Dibra men, but others come from outside the tribal area, from such places as Elbasan and Tirana.

The *kiragi* is a hard-bitten man, disillusioned early in life by a close observation of human behavior under stress, since all travel in Ghegnia is difficult. He is a non-combatant, a man with no family ties in the regions in which he works, and not worth killing. Anyone who robs him too often will keep trade away and cut off the supply of needed imports. He will rent out anywhere from one to a half dozen horses, to go anywhere the road will take him, and the rate per day has to be argued over at length. He insists on taking grain for his

[1] [See cat. 116, p. 109--Analyst]

494 463 horses at the customer's expense, and will refuse to go on if the grain is exhausted. All kinds of situations arise to produce arguments between *kiragi* and customer, such as the unexpectedly high price of grain in a certain place, inn charges, and the condition of the horses.

Besides carrying passengers and their goods, the *kiragi* will do errands; he will carry goods to market without their owners, sell them, and take his commission; then he will bring back a specified list of purchased objects. He must be reasonably honest or he will lose the traffic. At the same time the mountaineers who hire him are spared the risk of crossing hostile territory.

[873] *Kiragis* are either in business for themselves or in partnership, or working on shares with an investing capitalist. Since Islam prohibits interest, the share system is the one employed. It is not big business, for the maximum number of persons involved will not exceed a half dozen, including the boys whom the *kiragi* takes with him to help with the horses. It is, however, one of the few ways in which the otherwise closed country of the Gheg mountaineers is systematically and constantly penetrated. In 1929 there must have been at least a hundred such professionals on the roads every day.

485 In Moslem country the principal roads are equipped, at appropriate distances, with inns. As with tourist cabins in the United States, it is best to start at daybreak or earlier, and get in well before sunset, for the inns are often full well before night. The usual inn consists of 3 rooms; a large stable, which occupies about three-fourths of the whole; a chamber with a low ceiling built into one corner of the building, some 14 feet wide by 30 or 40 feet long, with a fireplace at the far end; and a cubicle which serves as the *hanji's* (innkeeper's) private quarters, office, and store.

When you enter the inn, the *hanji* sees that you unload your animals, and assigns them space in the stable. He has straw there, and sometimes grain if you have not brought your own. Then he gives each guest a section of the floor, which is divided into 3 strips, the 2 on the sides being about 6 feet wide, and the center one, 2 feet. Guests sleep side by side on the lateral strips, with the center reserved as a passageway. The guests feed themselves.

485 with cooking privileges at the fireplace, while the host brews coffee for sale, and also dispenses *raki*. After his guests are in for the night he locks the door, and cannot ordinarily be persuaded to unlock it before morning, no matter how urgent the needs of the guests to go outside. This precaution is necessary owing to the frequency of violence.

Some of the *hanjis* are local men. Others come from Kruja, the home of innkeepers. All of them live as bachelors. This system, like the *kiragi* business, brings a certain number of outsiders into the country. All in all there are probably 12 to 18 *hans* in Ghegnia, in addition to the one European-style hotel at
574 Peshkopia. The Catholics do not use this system; in their tribal areas guests are put up by important individuals through a system of re-
[628] ciprocal hospitality. Since local feuds are usually more prevalent in Catholic than in Moslem country, travel across the former is relatively light.

438 There remains only the question of trade, which has been partly covered.[1] On the whole it may be said of the mountain Ghegs that they live by a regional, or geographic, and perhaps also ethnic, division of labor. The ordinary man is a farmer, who produces firewood, cereals, legumes, tobacco, wool, milk products, and sometimes wooden spoons. His wife produces cloth, crocheted stockings, embroidered scarfs, baskets, eggs, and a few other local products. These mountain products find their way to the market towns. Usually men and women come together; sometimes only the women make the trip, and sometimes the whole family stays at home, sending the goods by a *kiragi*.[2]

The Ghegs are able to export these things because they produce a slight surplus of agricultural products. One reason for the surplus may be that they use a number of labor-saving devices, including fulling and mealing mills run by water power.[3] This gives them more time for other pursuits, but does not increase their complexity of relations at home, since the mills are small and serve individual groups of related families.

[1] [see cat 116, pp. 20a-20b --Analyst]

[2] [see cat 116, pp 20a-20b Analyst]

[3] [see cat 116 pp 17b-18a--Analyst]

438 On the other side of the picture lie the craftsmen and shopkeepers in the towns, some Albanian, others Turkish, others Serbian. These craftsmen live off the exports from the mountains and from the other agricultural regions around them, and supply the mountaineers with their needs, including firearms and ammunition, as well as the objects previously listed.

So far the picture is simple, mountaineers on one side of the fence, townsmen on the other. A mountaineer may become a townsman, but never the reverse. At several points, however, the security of the mountains is penetrated: by the itinerant masons who build *kullas*,[1] by the *hanjis*[2] and *kiragis*[3] who handle traffic and care for travelers, and by the shopkeepers, who are themselves usually Ghegs, and who are found in the larger tribal villages, usually but one to a settlement. I can recall but one in Mirdita, none in Shoshi, while in the country villages of Dibra, Luma, and Puka, along the main roads, there were several. These men sold tea and sugar, needles and thread, cigarette papers, salt and pepper, a little candy, candles, kerosene, kerchiefs, and matches. They saved a trip to town for minor purchases.

511 With this balance of production and trade,[4] the Ghegs barely succeed in making a living. If their average income could be accurately assessed, it would be one of the lowest in Europe. The ordinary farmer has just enough clothing to cover his family. In some cases I have seen brothers with one suit between them; one had to stay indoors while the other went out. This was in Merturi. The ordinary household has just enough food to get through the year, saving the next year's seed and selling a little in the town. Many houses are the scenes of tightened belts and near starvation [842] every spring. Since there is no knowledge of [165] contraception, many children are born. As ideas of sanitation are also lacking, many people die, and the population is always a little greater than the threshold of tolerance. Feuds, sudden death, and emigration are necessary safety valves. Another very recent one is enlistment in the gendarmerie.

[1] [See Cat. 116, pp. 14b-15a--Analyst]

[2] [See cat. 116, pp. 20b-21a--Analyst]

[3] [See cat. 116, pp. 20a-20b-Analyst]

[4] [See cat. 116, pp. 21a-b--Analyst]

000 THE FAMILY SYSTEM: WHO MARRIES WHOM AND WHY[1]

000 TO THE anthropologist, selective marriage systems, such as cross-cousin and parallel-cousin, are run-of-the-mill phenomena. But the anthropologist is used to dealing primarily with non-European peoples, living far from centers of civilization. To the sociologist brought up on European and American subject matter it is an event to discover a "primitive" system in operation only 250 miles from Rome, in the 20th century.

592 As our study of material culture made clear, the Gheg family, like that of the early Israelites, or of the Chinese of any period, is an economic institution. One household, consisting of a man, his wife or wives, his sons, unmarried daughters, and son's children, lives in a single house or group of houses, and all ordinarily work together. The most complicated tasks which confront them require the co-operation of such a group, but no more, except in rare events when neighboring kinsmen may be called in. Isolation and political insecurity enhance the frequency and strength of the mutual relations of the family members. In some of the tribes, notably Dukagin, these households number up to 30 or 40 persons; the Arabic word *mehalla* (military camp) is used to designate them.

[462] A sex division of labor clearly separates the work of the women from that of the men. Each needs the other. A houseful of widows and unmarried women would be unthinkable, as would a house occupied by men alone. The family must be a balanced unit. If a man dies his place must be filled if possible; if a woman fails to bear children another must be found
[842] who can. The family must continue, and since so many men are killed before they reach maturity, it must produce boys. The birth of girls is less important because they are not killed, and because they leave the family to get married.

582 For a number of very good reasons, it is considered desirable to obtain wives for one's sons from a distance. In the first place, if a

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[127] [1] The principal source of this chapter is my own records. However, I also made use of Miss M. E.

582 boy were to marry a local girl, he might get in trouble with other local boys. Young men form attachments for the girls whom they see every day, and any feeling of rivalry in youth which was followed by such a marriage might continue the tension into manhood. The young men who live in one place must get along together as well as possible. Owing to economic pressure, all tensions run high, and tensions result in violence. Violence with one's immediate neighbors would be suicidal. Therefore it is best for fathers to arrange these matters well in advance, and to bring in new girls who have no local ties.

Then again, let us suppose that the marriage did not work well; that the bride was shy, disliked her husband, was slow to adjust herself to living with him, or resented her mother-in-law's interference. If her parents lived close at hand, she could run home and complain to her mother. Soon her father and brothers would be making trouble for her husband and his family. Any wise person can see that it is much better to bring the bride from a distance, and then if any trouble arises between the two kins, they will be too far separated to cross each other's paths very often.

Once a family has formed the habit of getting its wives from another group in a distant area, that habit is likely to continue. A man will go to his wife's brother and say, "Haven't you a daughter for my son?" and the thing is easily arranged, providing that the earlier marriage has been successful. This requires less effort than breaking the ice with an entirely new group of people, but at the same time it preserves the necessary distance. Of course, if the man's wife's family has no daughters available for his son, he can try their neighboring kinfolk, or some other family with which some of his cousins have worked out a similar arrangement. In this way 2 things are evened up; one does not give a girl away without some assurance of getting in return a wife for one's own son.

[127] Durham's publication of 1928, as well as material contained in a letter which she most kindly wrote me.

582 This system satisfies the universal principle which applies in all human mating, that *the ideal or normal choice of spouses shall be that which creates the least disturbance in the systems of relations of both parties concerned.*[14] That a form of cross-cousin mating should have survived in the Gheg country is a natural consequence of the equal survival of an archaic technology in a rugged environment. The system fits the circumstances, as one might expect.

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Table 1: Numbers of Wives Married by Fathers of Subjects, and Numbers of Offspring.

	MeM	Duk	MeJ	Has	Lum	Puk	Mir	Zad	Mat	Dib	Int	Total
One Wife, Moslems	40		54	72	76	50		9	69	74	3	450
Catholics	47	89	10	10		24	82	83	9		2	356
Total	87	89	64	82	76	74	82	92	78	74	5	803
Two Wives, Moslems	12		27	19	23	13		3	20	32	1	150
Catholics	5	16	5	3		12	16	7	1		3	68
Orthodox											1	1
Total	17	16	32	22	23	25	16	10	21	33	4	219
Three Wives, Moslems			4	7	8	1		1	4			25
Catholics			2				1	1				4
Total			6	7	8	1	1	2	4			29
Four Wives, Moslems			1		2	1						4
Catholics		1					2					3
Total		1	1		2	1	2					7
Six Wives, Moslems			1						1			2
Total Fathers	104	106	104	111	109	101	101	104	104	107	9	1060
No. childless 1st wives		6	8	4	2	3	1	1	4	6		35
With daughters only	1	7	2			4	3	3	4	2	2	28
Total unsatisfactory 1st wives in plural marriages	1	13	10	4	2	7	4	4	8	8	2	63
No. boys born	400	317	332	366	394	325	300	298	271	365	31	3399
No. girls born	283	237	201	239	227	188	165	159	167	184	17	2067
Total children	683	554	533	605	621	513	465	457	438	549	48	5466
No. children per family	6.6	5.2	5.1	5.8	5.7	5.1	4.5	4.4	4.2	5.1	5.3	5.2
Sex ratio of children	141	134	165	154	174	173	182	187	162	198	182	163

582 However, the Gheg father, if asked, would
775 not give the answers detailed above as reasons for his choice of a bride for his son. He would voice a number of local rationalizations: that the son inherits body and soul from the father alone, the mother being merely a vehicle of

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[1a] Coon. 1948, pp. 602-03.

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775 reproduction; that it is dishonorable and unthinkable to marry any kin whatever. Since the mother's family is no relation, sons can continue to take their brides from it for generation after generation. The Law of Lek Dukagin, which the Gheg father would quote on such an occasion, has taken care of this subject once and forever.

583 The choice of a bride for his son is as much a political problem to a Gheg householder as it was to a 19th-century European king in the

583 heyday of royalty. No mistakes must be made, and the preferences of the parties concerned are not considered important. Hence the fathers make the arrangements. A man normally pays 15 to 20 napoleons (60–80 dollars) for his son's wife. This is half the price of a new kulla[1].

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[1] [see cat. 116, pp. 14b- 15a — Analyst]

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582 new *kullā*.[1] If the man has many sons, the youngest may not get a new wife, but have to content himself with a widow, who is cheaper. Also it may take some time to find a fiancée for each boy, and many young men wait until quite late in life for marriage.

[163] The principal reason for this delay, aside from the price, is the peculiar birth and death rate figures for Ghegnia. Many more boys than girls are born. In some regions the boys outnumber the girls almost two to one (see table 1).[2] However, as soon as a boy is big enough to carry a gun he may begin feuding, and stands a good chance of being killed. Then his marriage arrangements may be transferred to his brother, or cousin, and hence the young lady may marry someone quite different from her expectation.

582
586 The alert and provident father, ever on the lookout for daughters-in-law, may place a substantial part of his bride price on a baby girl, as soon as she is born. Or he may gamble on the sex of an unborn child. The baby girl may find herself, at the age of 14, married to a man of 40. Once she has been handed over to her new husband and the folk-rites performed, she is still on trial, and may be sent home if she fails to produce offspring within a reasonable time. Among the Catholics the church wedding is often delayed until after the birth of the first child. In this way the bride can be returned if found wanting, and the rule of Christian monogamy will not have been technically violated. Among the Moslems, where both polygyny and divorce are officially permitted, these subterfuges are not needed.

593 While the Gheg system of selecting mates may be well attuned to the exigencies of the environment, the economics, and the political life of the mountaineers, it permits little opportunity for personal adjustment between the husband and wife. Prince Jon Markajon (fig. 10, *a*)[3] summed this up when he said to me, gloomily, in the presence of his wife, "There is only one woman a man can trust—his mother." In the cases where cross-cousin marriage works out ideally, the boy and girl may have met before betrothal, or at least before marriage. The boy's mother, on a visit to her own kin, may take her youthful son with her, and he will have a chance to play with his

[1] [See footnote, cat. 116, p. 23 c -- Analyst.]

[2] [See cat. 116, p. 23b --Analyst]

[3] [see cat. 116, p 110 -- Analyst]

593 maternal uncle's children. Then when the bride joins her husband in his father's house, she will come directly under the supervision of her paternal aunt, a woman whom she has already seen, and who represents an extension of her own family in the strange household. Such an ideal arrangement still makes no provision for a selection of mates on the basis of personality adjustments. It merely makes the change from one household to the other a little easier than if the girl were a total stranger. Very often a girl's fiancé is killed and she has to marry one of his brothers, a cousin, or someone of an entirely different family, and there will be no familiar aunt to smooth things over, but instead a suspicious and exacting mother-in-law, with whom her only ties are through her husband.

583 It is no wonder that brides sometimes run away. If they come home their fathers usually return them. Not infrequently they elope and if they are lucky settle in some city, or distant countryside where the limb of Lek Dukagin's [538] law is not long enough to reach them. Gheg epic poetry, which the traveler hears sung night after night in private houses, hans, and gendarmeries, dwells frequently on the theme of elopement. One hears at length about couple after couple, hopelessly in love, who break all of the rules, run away, and meet a tragic but inexorable fate. In the epics they seldom if ever make good their escape. In real life I believe that they sometimes succeed, and their elopements, successful or otherwise, help reduce the population of the mountains.

589 If a young woman is faced with a marriage which she cannot bring herself to consummate, and if she has enough strength of character to take the following step, she can avoid matrimony by becoming a "sworn virgin" (fig. 10, *d*).[*] She summons a meeting of the 12 elders of her community and in their presence swears perpetual chastity. By this means she not only gets out of her engagement, but also prevents a feud between her father's kin and those of [838] her fiancé. At this point she becomes technically a man. She may or may not don masculine clothing. She will carry a gun, and fight like other men. She will plough and reap, and do all of the tasks of a man. If she breaks her oath, the elders will, in theory, burn

[*] [see cat. 116, p. 110--Analyst]

589 her alive. It is doubtful if this punishment has been exacted on any such person within the last few generations.

As the reader can readily see, this custom has its economic aspects. The number of hands available for men's work is increased by two, that for women's work decreased by the same number. There is a second and less dramatic reason for a girl to swear virginity: if her father has no sons to help him with his work, or if his sons are killed. Then a daughter may step into the position of a son, and the
[428] situation is momentarily saved. However, since the pseudo-son will have no offspring, the line will become extinct with her death, and the property pass to the next of kin on the father's side. This custom is at variance with the usual one in comparable societies, in which the husband of the man's daughter comes to live with her parents, and is adopted as an
[611] heir. So strong is the belief in the continuity of the male line that this could not be done in Ghegnia.

On my travels I encountered only 2 sworn virgins. One wore men's clothes, and appeared to be either mentally defective or at least "queer." That also was her reputation. The second wore women's clothes. She was in her early twenties, and quite attractive. Since she spent the night with a junior member of my group of horse-drivers, I formed a poor opinion of the burning-alive theory. It is quite apparent that the practice of swearing virginity is not only often economic in motivation, but also a part of the whole business of local population control, along with the entire configuration of pride, insult, and feuding.

587 Two other mechanisms help maintain the personnel of the family at the optimum numerical working level, and to prevent the isolation of separate individuals or small, uneconomic groups. One is the levirate. Classically this means that when a man dies, his widow will be married to a surviving brother
[165] or next of kin if such a brother is lacking. In a country where the rate of death by violence reaches the level of 40 per cent of all male
[582] deaths in some localities, and where girls are married at 14 or 15, many are widowed.

Such a widow must be cared for by the men of her husband's family, since they have paid

587 for her and she has joined their group. If there is a surviving brother who is single, obviously the expedient thing to do is to give her to him. She might even be given to a first cousin. However, the occasion sometimes arises in Ghegnia where the classical form of the levirate is indicated, and a brother, preferably an older brother, of the deceased, a man who is already married, takes the widow into his household. In Moslem communities this causes no ecclesiastical difficulty. In Catholic households it may bring about a conflict with the priest. In such a case the Law of Lek wins over the Law of Rome. Societal needs are stronger than religious taboos. The new husband may not be allowed a church marriage, and it is possible that he may not consummate the new union, but the woman enters his household, and he cares for her and her children.

595 The second mechanism is polygyny, in case the first wife fails to produce male offspring. This again is perfectly legal among Moslems and diametrically counter to Catholic rules. The priest will not allow the husband to divorce his wife who fails to give him sons. If she gives him daughters there is always hope that a son will follow, and the crisis may be delayed. But if after a suitable time there are no offspring whatever, he will need a new wife. He cannot divorce his old one, and he cannot legally marry his new one. Here again custom sometimes wins. I personally have visited only one household of Catholic Ghegs in which I knew that the master had 2 wives, and it was for this reason. It is little wonder, since Catholicism fits so imperfectly the economic needs of the Albanian family, that many of them went over to the much more satisfactory (in this respect) faith of Islam.

125 In making up the form of our measurement blanks before the expedition, Dr. Hooton and I allotted spaces for the notation of the following vital statistics: number of wives married by subject's father, and number of children of each sex born to each wife. We chose the subject's father rather than the man himself because we would thus be dealing with complete or nearly complete families. In every case we received specific answers; very few men, whose fathers had had 3 or 4 wives, could

125 not remember how many children the oldest wife had had.

128 595 These statistics do not constitute a record of pregnancies. Children who died in infancy are probably not included. Female infanticide has not been reported in Ghegnia. Presumably all or most of the children grew to such an age that either they were still living in 1929-30, or were old enough at the time of death to have made an impression on their full or half brothers who were our subjects. Our figures tell how many wives each father had, but not how many at a time. It would be hard to get that information from a casual questioning done in public at the time of measuring. In 1929 polygyny was legally forbidden in Albania for Catholics and Moslems alike, and the Catholics had in addition the position of the church to keep them from revealing the polygyny of their parents in the presence of several dozen other people. One other obvious defect of our data is that we have no record of marriages in which no son was born, and no second wife taken. This circumstance, although rare, must have occurred. The reader may think, in view of the unusual sex ratio, 163 male to 100 female offspring, that Moslems failed to reveal the true number of girls born, but I do not believe that this was the case. The Catholics had the same sex ratio as the Moslems. Furthermore, if many more children had been born than were recorded, the reproductive systems of Gheg mothers would have been taxed beyond their capacities.

As table 1 reveals[1] 1060 Ghegs married 1375 women. Three-fourths of the men had but one wife each, the rest anywhere from 2 to 6. A third of all Moslems married more than [511] once, compared to a sixth of Catholics. The greater plurality on the part of the Moslems reflects the greater fertility of the soil in the eastern tribes, which are almost wholly Moslem, and where a man can afford more wives and feed more children. The wholly Catholic tribes, Mirdita and Dukagin, are the poorest in Ghegnia. Where the Catholics and Moslems live together in about equal numbers, the Catholics marry as many wives as the Moslems. In fact, in Puka the Catholics had more. Religion therefore has little to do with the total number of wives a man marries, although it

[1] [see p. 236 -- Analyst]

595 may have something to do with the number to
163 whom he is married at one time.

128 Our statistics give us a little help in finding out why 256 Ghegs married more than one wife. In 82 cases, or 32 per cent, the first wife failed to provide her husband with an heir, although in 28 of these cases, or 11 per cent, she did produce one or more daughters. Since we do not know the date of birth of each child, we cannot be sure that some of the first wives who bore sons did not do so after a second wife had been taken, and the ratio of plural marriages concluded for this reason may be higher than our figures indicate. Some of our records reveal marriage after marriage without issue, until finally, the fourth or even the sixth wife bears a son. One can almost hear the gunfire and rejoicing.

Our intertribal mixtures, in 5 cases out of 9, were men whose fathers had taken more than one wife each. Of the 4 Has men whose mothers had come from Podrima, 3 had been reared in polygynous families. These figures strongly indicate a political motivation. The custom of taking plural wives from alien tribes in order to strengthen alliances is a widespread one, and goes back to the days of Solomon. Our figures are not suited to reveal the exact instance of this kind of exogamy.

These 2 reasons probably account for nearly a half of all plural marriages. The other half can easily have been caused by accommodations to untimely deaths. Upon the death of a man, the levirate might give one of his kinsmen a second wife. Upon the death of a woman, her husband would remarry, were he able. What with difficult deliveries, puerperal fever, and general exhaustion from having borne too many children in rapid succession, death must have taken many of the women listed in our series at an early age.

163 The figures on children show that 1060
128 fathers, through the agency of 1375 wives, produced 5466 offspring who lived long enough for our subjects to remember them. This yields an average of 5.2 children per family, of whom 3399, or 62 per cent, were boys. Thus the average Gheg householder had 3.2 boys to help him work his farm. He had only 2.0 daughters to sell in marriage. This birth rate is so high that a considerable population

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pressure is created. It varies from 4.2 in Mati to 6.6 in Malsia e Madhe, with the largest families on either side of the mountains, the smallest in the middle. Even the smallest are too large for the landscape to feed without a change in methods of land utilization, a change which has not yet arrived.

166 In the country near Scutari, the city will take some of the excess. In the lands east of the Black Drin, migration onto the plain used to be possible, and habitual. Cvijič has shown[2] how, along the entire Dinaric chain, there has been for centuries a steady flow of population out of the mountains. In the center of the mountains, however, such emigration is not easy. Particularly in the old days when Catholics were not welcome in Moslem territory, the mountain people had to stay at home. [628] There is only one universal, immemorial method of disposing of excess population under these circumstances. That is the method found in the Rif, in the Caucasus, in the Kafir country of Afghanistan, and in many other places—feuding. If enough males are killed off, the population remains constant.

165 Males only are killed. A few statistics on deaths by violence are available.[3] During the period 1901–05 the ratios in a number of northern communities were Toplana, 39 per cent; Dushman, 23 per cent; Spaç, 32 per cent; Shala, 26 per cent; Orosh, 21 per cent; Nikaj, Shoshi, and Kačinari, 25 per cent each. Double these figures and one finds between 42 per cent and 64 per cent of males dying in internecine 163 warfare. As if some natural mechanism were deliberately trying to compensate for this one-sided loss, we find a sex ratio of 163 male births to every 100 females born.

Sex ratios of this magnitude have been found before in feuding countries, and in fact the ratio of male births has been shown to rise in our own country in time of war. The biological explanation[4] is that people living under conditions of warfare marry and produce children at an earlier age than they would in time of peace. Some mechanism upon which all biologists do not agree selects the sperm cells, or the fertilized eggs, in the mother's

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[2] Cvijič, 1918.

[3] Nopcsa, 1925. Data compiled by the Catholic clergy.

163 reproductive organs. That is why first-born children tend preponderantly to be boys. It is the age of the mother that counts. In northern Albania girls are married as soon as they come to sexual maturity and begin bearing children as soon as they are biologically able. There is no time of peace.

128 These statistics,[1] though not complete, help round out the picture drawn in the earlier chapters. All of these things fit together: the environment; the techniques of making a living on the specific kind of landscape; the division of labor between the sexes; the economic unity of the patriarchal household; its independence of similar households; the division of labor between mountain and town; the consequent absence of any need for a technological division of labor among the mountaineers; the difficulty and limitation of travel and transport; the struggle for life within an ever-increasing population; the consequent mechanisms of population control, consisting in some of the border tribes of a certain amount of emigration, but, by and large, taken care of by the time-honored technique of feuds and reciprocal murder, to which the whole system of marriage, and its biological compensations, [177] are adjusted. They show without question the truth of the main point of this paper so far, that the Mountains of Giants form a genetic area peculiarly closed to outside influence.

614 [582] We stated in our discourse on marriage that a boy might not marry a girl with whom he could trace any common patrilineal descent.[2] That statement needs elucidation. Actually the Ghegs are divided up into a number of mutually exclusive gentes, called *fis*, based on traditions of common ancestry, complete with origin myths. The extent to which the myths are historically accurate probably depends on how far back the particular *fis* goes. Each *fis* is said to have been derived from a single man, usually someone who came into the country at one time or another, although a few are believed to have been descended from aborigines.

The most numerous and best known *fis* in Ghegnia is that of Dukagin. This includes the 3 *bairaks* of Orosh, Spaç and Kushnen, which

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[1] [see cat. 116, pp. 25b-27b — Analyst]

Gates, 1946, vol. 2, pp. 872-73; Little, 1919, pp. 127-30.

[2] [see cat. 116, pp. 22b-23a, 23c-23d -- Analyst]

614 constitute three-fifths of Mirdita, as well as Shoshi and Shala in the tribe which bears the Dukagin name. There are 2 origin myths, one told in Dukagin, the other in Mirdita.

According to the first legend, 3 brothers came from a place called Marina near Jakova. One carried a winnowing sieve (*shosh*) and became the ancestor of Shoshi. The other carried a saddle (*shal*) and sired Shala. The third carried nothing, said, "*Mir dit*" (Good day) and walked away. His descendants are the people of Mirdita. The Mirdita people tell a more detailed story. They list 5 brothers, Shosh and Shal as before, named for the objects they carried, and 3 others who settled Mirdita—Orosh, Spaç, and Kushnen. The meaning of these words is obscure.[5]

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621 In Mirdita where these 3 brothers settled they found other people ahead of them, the ancestors of the inhabitants of the 2 remaining *bairaks* of Dibri and Fan. Dibri and Fan had several kinship lines each, hence each consists of a number of *fis*. Orosh, Spaç, and Kushnen *bairaks* form a single exogamic unit today. They take their wives from Dibri and Fan, from the Christian *bairaks* of Selita and Kthella in Mati, and they did from Lura before they fell in blood with them. They also marry Christian women from the 7 *bairaks* of Puka. No man from Orosh, Spaç, and Kushnen can marry any woman from these 3 *bairaks*, or from Shoshi or Shala.

Shoshi and Shala form an isolated geographical unit, with Shala at the high and Shoshi at the low end of an enclosed upland valley. It is not easy to enter or leave this area. Hence the marriage restrictions between the two, if they ever existed, have disappeared, and Shoshi men regularly marry Shala women, and vice versa. The local rationalization is that over a hundred generations have passed since the time of the 2 ancestral brothers, long enough to remove any trace of consanguinity. By the same token they could theoretically marry their fellow *fis* members from Mirdita, except that the Mirdites would not agree. In any case

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[5] The Mirdites claim that *spaç* meant "sickle," *kushnen*, "pitchfork." I did not learn what *orosh* was supposed to mean, nor can my Albanian friends in Boston identify it. *Orosh* may, however, be the same as Urosh, a Slavic name borne by the son of the Tzar

[continued p. 28b --Analyst]

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the 2 tribes are so far apart, and so isolated, that the occasion would not arise. Shosh and Shala, like their brothers, found aborigines in their valley; with the descendants of these earlier residents they too can form convenient short-distance unions.

Merturi and Nikaj, the 2 Catholic *bairaks* of Malsia e Jakovës (the other Catholics, those of Krasniqi, migrated en masse some 30 or more years previously to Jakova) regularly intermarry, back and forth, like Shoshi and Shala. In general the larger exogamous units are found among Catholics, the smaller among Moslems. Most Moslems feel that 7 generations distance between kin is enough to permit marriage, which means that brides are usually taken from nearer home. North of the Drin, and in Mirdita, even when there are several intermarriageable *fis* in a single village, village exogamy is required. In the Moslem tribes to the south and east this is said to be unnecessary. In the town of Gur i Bardh, in Mati, we were told that village endogamy is usual. There can be little question that the Catholic system as practised in Mirdita, Dukagin, and Merturi-Nikaj is historically the older, and is the more closely associated with isolation and intense feuding.

In the next chapter we will go into detail on the number and locations of various *fis*[1] Here it is enough to state the principle, amply demonstrated by the evidence, that where there has been little travel and a minimum of immigration, one finds single kinship groups occupying wide areas, as in the cases just mentioned. Where there has been more travel and moving around and changing of domicile, one finds many little kinship units in a relatively small area. Thus in Puka, where the main highway passes, there are dozens of *fis*, of a few households each, and the same is true in the more traveled parts of Luma and Dibra, and in the neighborhood of Scutari.

The *fis*, as we have seen, is the basic unit of exogamy. Like all human institutions and aggregations it is a mobile unit, never com-

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Dushan, who despoiled the lower Drin country at the end of the 14th century (see page 43[2] It is obvious that these contemporary translations of the ancestral names are apocryphal.

[1] [see cat. 116, pp. 30a-34b -- Analyst]
[2] [see cat. 116, pp. 43a-43b -- Analyst]

[p. 28(b)]

614 621 pletely static. It changes with local needs. We have seen how in Dukagin the local geographical requirements split a *fis*, and how in the relatively less warlike Moslem areas with a reduction in need for extended exogamy, the device of a 7-generation distance was innovated, while village exogamy disappeared. So far we are dealing with reductions in exogamy. However, there are instances in which the opposite occurs, and the incest group is extended. 608 Two ritual mechanisms provide for this, blood brotherhood and godfatherhood..

When 2 men become close friends and allies, and find themselves in need of each other's assistance, particularly in feuds, their relationship becomes similar to that of brothers, which is an extremely close one. It is therefore considered necessary that they make this relationship legal, which they do by means of a simple ceremony. The 2 men prick their fingers with knives, and either lick each other's blood, or bleed mutually into a cup of *raki*, which both drink. Once this has been done they are one in blood, and their children cannot marry each other. The other rite, godfatherhood, has its

[p. 29 (a)]

608 852 The other rite, godfatherhood, has its motivation in exactly the same circumstances; but it is made to coincide with another rite of passage, that of the first haircut of a baby boy, the son of one of the participants. The father, child, and prospective godfather meet outdoors, in the presence of other kin. The godfather holds the boy in his lap, and snips off 4 locks of hair, if Christian, and 3, if Moslem. The difference lies in the refusal of the Moslem to make the sign of the cross. The godfather then burns the hair. A feast follows, during which the godfather gives the father a present of cash, the father reciprocating with a gift of fine clothing.

604 614 Both of these rites[1] place the descendants of the 2 principals in an incest relationship. They do not, however, apply to collateral kin, for if *A* and *B* become blood brothers or godfathers, *A*'s brother's son can still wed *B*'s daughter, while *A*'s son cannot. This complicates the picture beyond this simple *fis* system and provides a number of special relationships to meet individual requirements. Needless to say, the local Catholic clergy frown on both these practices.

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[1] [blood brotherhood and godfatherhood, see cat. 116, pp. 29a - 29b -- Analyst ']

500 POLITICS AND FEUDING

POLITICS AND FEUDING

592 THE smallest political institution in tribal Gheg society is the household, the extended family living together, which is also an economic institution. The head of the household is the oldest male of the parental or grandparental generation, the patriarch. So strong is the feeling for age-grading in Albania that men will obey their fathers as faithfully at 40 and 50 as in their teens. Since all sons do not necessarily live with their fathers, but some may occupy separate houses, the institution of the household may thus be expanded spatially, although the relationships are maintained.

[672] [628] The household is a unit of warfare; when a man commits murder within his own tribe, his household suffers together. In seeking vengeance, a man can wipe out the blot on his family honor by killing the brother of his enemy; responsibility is held to be collective. If one member of a household kills another, which happens but very rarely,[1] nothing is done. The loss is that of the family.

621 The next unit is the village. It may be a compact group of houses, surrounded by its farmland and pasture; or it may consist of isolated homesteads, each in its own land. The latter is the more usual form. In either case, it has some central building, a mosque or a church; or it may merely have a flat place, usually shaded by an oak, where the elders
623 meet. Each village is supposed to have 12 elders, whose office is partly hereditary, partly elective. Various families habitually furnish one man each to fill this position. The word for elder is *plak*, which Miss Durham traces back to the time of Strabo.[2] One of these elders is the *kryeplak*, literally, head elder. In one village in Has, when I measured the *kryeplak*, he told the recorder that he was "mayor" of the village. He calls the elders together when events arise that need their

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[1] Miss Durham gives one instance from Dukagin (Durham, 1928, pp. 69-70).

[2] Durham, 1928, p. 14.

623 attention. These include the use of tribal
lands, decisions whether or not to burn forest
to make pasture, etc., although such matters
usually involve several villages. The elders
also convene as witnesses in oath-taking.

634 Above the village is the *bairak* (Turkish for
banner, standard), a geographical area with
some kind of natural unity, so that the people
living in it habitually see more of each other
than of those without. All of the village councils
meet together for the *bairak* council, under
the *bairaktar* (standard-bearer), or head of
the *bairak* (fig. 10, *e*).† His office is hereditary
in certain families. King Zog's father was
bairaktar of Mat, the principal *bairak* of Mati;
in Dibra Major Çen Eleze, who acted as host
to our expedition, was one *bairaktar*, while
Murat Kaloshi, his rival, was another. These
men were great feudal leaders, maintaining
large households of armed men, and dispensing
[177] lavish hospitality to all comers. Çen Eleze had
sent two of his sons to the American Technical
School in Tirana, where they learned modern
agricultural methods as well as perfect
English. These boys, huge fellows over 6 feet
3, were of great help to us when we visited
Slatina.

The *bairaktar* can become an independent
sovereign if he has a strong enough personality
and if the tribal authority is weak, and that of
619 the central government likewise. At other
times he is under the authority of the head of
the tribe, an official chosen from a ruling
household, and bearing a different title in each
tribe. In Mirdita he is called *Kapedan* (Captain);
in Puka, *Shpij e Krye Ziut* (Black-Head
House); in Malsia e Madhe, *Shpij e Madhe*
(Big House), the exact equivalent of the ancient
Egyptian *per äa*, or Pharaoh.

124 Fifty men, comprising 5 per cent of our
619 metrical series, were office-holders in the Gheg
tribal system. Eleven[8] were elders, 26 chief

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[8] Four from Dukagin, 2 Puka, 4 Mirdita, 1 Zadrima.

† [see cat. 116, p. 110--Analyst]

124 elders,[4] 8 *bairaktars*,[5] and 5 retainers of a tribal
619 prince, Jon Markajon of Mirdita (fig. 10, *a*)[1]
[463] Except for the chief elder of Karashegeç in
Has, who was a baker, all of the elders, chief
elders, and *bairaktars* were farmers. The baker
was "mayor" of a village of bakers, outside the
mountain area. All of these men were locals,
born of local fathers and mothers taken from
within the father's tribe. Preferences are thus
shown for (a) agriculture as against handicrafts
or trade, and (b) local as against outside
descent.

Jon Markajon, the only tribal chief whom
we met, and who entertained us very well at
his capital in Orosh, would not allow us to
measure him, although he summoned all of his
subjects from nearby villages. The 5 retainers
whom we measured in his house constituted
his princely staff. Three of them were part-time
farmers, and 2, full-time political employees.
What their exact duties and titles
619 were, we did not determine. The ancient
642 tribal government of Ghegnia, if we may
judge by the example of Mirdita, the one tribe
in which it survived more or less intact until
1929, consisted of a graded hierarchy with
three steps—elders and their chief, *bairaktars*,
and tribal prince. Attached to the prince was
his staff of special messengers, chamberlains,
and guards.

The tribal government was in the hands of
the prince and his council, which consisted of
all of the elders of the tribe, with their chief
elders, and the *bairaktars*. The heads of large
and powerful households, even if they held no
[623] formal office, would be included. The council
met in cases of murder within the tribe, of
intertribal warfare, invasion, or other crises
involving violence. It also met to decide on
its own composition, i.e., to hear the petitions
of neighboring *bairaks* to join it.

619 The strength of the prince as compared to
643 that of the council depended on the former's
personality. During the last 50 years, for example,
Mirdita has been ruled by the following
princes: Bib Doda, a great and powerful man
who died about 1913; Preng Bib Doda, his
son, who was killed shortly after in a blood

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[4] Nine from Malsia e Madhe, 1 Has, 4 Mirdita, 4 Zadrima, 3 Mati, and 1 Dibra.

[1] [see cat. 116, p. 110 -- Analyst]

619 643 feud; his cousin, Marka Gjoni, a weak character; his son, Jon Markajon, the incumbent in 1929, a man powerful enough to maintain the tribal system in defiance of the central government, to have his men exempted from military service and taxation, and to exact from Ahmed Zog an annual stipend in return for which he would keep his men quiet.

634 619 Each tribe in Ghegnia is an aggregation of *bairaks*. In 1929 we found 13 *bairaks* in Malsia e Madhe, 6 in Dukagin, 7 in Malsia e Jakovës, 2 in Has, 5 in Luma, 7 in Puka, 5 in Mirdita, one in Zadrima, 4 in Mati, 4 in Dibra, making 54 in all. The names of these, as recorded on our measurement blanks, are:

Malsia e Madhe: Klementi, Gruda, Hoti, Kastrati, Koplik, Greisha, Shkrelli, Riola, Reçi, Loya, Postripa, Triepsh, and Kraja.
Dukagin: Shoshi, Shala, Kiri, Dushman, Pulati, Toplana.
Malsia e Jakovës: Krasniqi, Gashi, Bituç, Marina, Vunshaj, Merturi, Nakaj.
Has: Vlana, Ershan.
Luma: Biçani, Kalishi, Ujmisht, Dolovisht, Çaja (Gorë, a Serbian-speaking *bairak*, is sometimes also counted with Luma).
Puka: Kabash, Puka, Çeret, Mal i Zi, Berisha, Buxhon, Iballja.
Mirdita: Dibri, Fan, Orosh, Speç, Kushnen.
Zadrima: Zadrima.
Mati: Mat, Lura, Kthella, Selita.
Dibra: Reçi, Stashani, Sheheri Poshtar, Sheheri Epert.

This list cannot be wrong in the cases of Puka and Mirdita, for the members of these tribes use the names *shtat bairaket* and *pes bairaket*, meaning *seven bairaks* and *five bairaks*, to designate their tribes. In Luma, Malsia e Jakovës, and Malsia e Madhe the picture is complicated by the presence of the Yugoslav-Albanian border, which not only cuts through *bairaks*, but has caused wholesale migrations and flights within the lifetimes of the subjects measured. Dozens of *fis* of a few households each have shifted about, and it is hard to tell to which *bairak* each belonged at the time the series was measured.

619 634 114 Miss Durham, who made her observations between 1908–13, some 20 years ahead of

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* Three from Malsia e Madhe, 1 Malsia e Jakovës, 1 Puka, 1 Mirdita, 2 Dibra. All of these except the Mirdita man bore reserve titles.

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me, found the tribal rosters different in some areas from those I later encountered. She calls Malsia e Madhe not a tribe at all, but a confederation of tribes. Of these Klementi is given 4 *bairaks*, Seltzi, Vukli, Boga, and Nikshi, while the other 9, Gruda, Hoti, Skreli (Shkrelli), Klementi (Kilmeni), Lohe (Loya), Rechi (Reçi), Rioli (Riola), Kopliku, and Grizha (Greisha), are said to have consisted of a single *bairak* each. Triepsh and Kraja were not listed, doubtless because they lay over the Montenegrin border even before the imposition of the 1913 boundary. She did not include Postripa in the confederacy, but made it a separate group of tribes.

These were Mazreku, Drishti, Shlaku, Dushmani, and Summa. Only one of these, Dushmani, is given 2 *bairaks*, the others having one each. Dushmañ is the only one of these names which appears on my list, where it is given the status of a *bairak* of Dukagin. I measured in the village of Postripa itself, and am surprised that no subjects from these separate "tribes" appeared. What I was told was called Dukagin, she lists as "the Pulati group," dividing this into Upper and Lower Pulati. She grants Lower Pulati 4 small, one-*bairak* tribes: Plani, Ghoanni, Mgula, and Kiri. Upper Pulati is given Shala, with 4 *bairaks*, Thethi, Petsaj, Lothaj, and Lekaj; Shoshi, number of *bairaks* not stated; Toplana, same; Nikaj, same. Merturi, which intermarried with Nikaj and is now called part of Malsia e Jakovës, she listed with Puka as a part of Berisha. The reason for this was that "Merturi split off from Berisha eleven generations ago."[6]

Mal i Zi, listed in my roster as a *bairak* of Puka, she assigns to Luma. She makes Gashi a *bairak* of Malsia e Jakovës, a separate tribe. She also grants tribal independence to the *bairak* of Lura, which she places at the head of a confederation including Mati and Dibra, and to Kthella, which she divides into 3 *bairaks*, Kthella, Selita, and Perlati.

1/1 [See Cat. 116, p 31 b Analyst]

It is my impression that some of these differences are due to a confusion on Miss Durham's part between *fis* and *bairak*, *bairak* and tribe. On page 68 she translates *bairaktar* as "head of the tribe." Had she not gone wrong somewhere it would have been remarkable.

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[6] Durham, 1928, p. 27.

619 634 114 Travel in Ghegnia in the years 1908–13 would not have been easy, even for an experienced man. For a woman to have made these journeys is something of a miracle. Others may be the result of the process of amalgamation, for many of the "tribes" which she mentions were miserable fragments of former populations decimated by warfare, and massacred, in some cases, by the Serbs. By 1929 a considerable realignment must have taken place in the whole area north of the Drin, and especially in the regions which she designates as Postripa and Pulati. In any case the 10 groups of people whom I have designated as tribes were so considered by the people with whom I worked in 1929, and form more or less self-contained, intermarrying units, sufficient for our present purpose.

619 628 Under the tribal system warfare was almost continuous. The underlying cause was of course population pressure. The overt causes were seduction, theft of women, elopement, cattle-stealing, and general raiding. It did not take much to give offense, particularly in the late winter, when food was scarce. Even a man who had almost enough to eat himself would be under severe tension, because of the general nervous strain of his kinsmen and dependents, and consequent maladjustment within the household.

A chance blow, a harsh word, even a play on words which is very easy in Shqip, or above all a cruel joke—these seemingly minor conflicts often led to gunplay and murder, with 522 consequent feuding. I had several occasions to feel their Iron Age wit, so much like that of the Norse sagas. Once my host in Zadrima remarked, in front of many people, that I had the skinniest legs he had ever seen, and wondered how I could walk. The assembled company burst into Homeric roars. On another occasion, in a Puka *han*, I lifted my head suddenly and hit it a sound smack on a protruding nail, partially stunning myself in the process. This was the funniest thing in the world. Once again, when Farnsworth and I crawled into our sleeping bags for the night, the whole household laughed and laughed. When we asked what was the matter, they said, "Just think, if the house should catch on fire! You

521 wouldn't be able to get out of those sacks, Ha! Ha! Ha!"

628 682 619 What happens when a man kills another of the same tribe can best be learned from the following quotation from Miss Durham.[7]

> Murder may be the result of a quarrel or it may be a blood-feud, the cause of which is more or less remote. In either case the man who has taken blood flies at once to a safe place outside the tribe. [Miss Durham is using "tribe" in the restricted sense, as before.] Any house is bound to give him hospitality. In the case of a feud, he is regarded as a most unfortunate man who has but done his duty. He at once proclaims his deed. The headmen of his tribe then meet and order his house to be burnt. Among the Dukagini the council has power also to destroy his crops, cut down his fruit trees, slaughter his beasts, and condemn the land to lie unworked for a term of years. An incredible [672] amount of food-stuff is thus wasted. In this group not only the man who has taken blood, but all the males of his "house," are liable for blood, so they, too, have to fly. The "house" is the home maybe of a whole family community—forty people. But the law is carried out to the last letter. Such desolated spots have I seen. But "It is the Canon, so must be obeyed," was the answer to any remonstrance I made. The women and children may scatter and find shelter in other houses if they can; they usually do. A man can save his house if he can return to it and defend it three days successfully, so that the men sent by the council cannot set fire to it. I saw "a very brave man" in Berisha who had three times saved his house thus. Or a man can save his house by inviting the head of another mehala [household] to act as house lord and defend it with his own men. This might cause severe fighting. The council, to prevent this, then as a rule agrees to burn the house only and spare the property. The amount of property to be destroyed was always decided by the council. . . . In addition to the burning of the house, in all tribes a fine has to be paid. . . . in sheep or cattle. . . . to the Turkish Government. In the case of Maltsia e Madhe this was paid . . . in Scutari. . . . punctually . . . . The Turkish Government had a certain hold on all the nearer tribes, for it could hold as hostage any member of a tribe which owed blood-gelt and came to market at Scutari. The outlying tribes of Dukagini by no means always either notified or paid for their murders.

Feuds being very weakening to a tribe, the headmen of the tribe or friends of the family would attempt to stop the feud. Blood-feuds of the Dukagini and Pulati tribes are settled in the mountains; those of Maltsia e Madhe were settled in Scutari before the representatives of those tribes [to the Turkish Government] who lived there. 628 682 619

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[7] Durham, 1928, pp. 66-68.

[8] Miss Durham translated *bairaktar* as "head of the tribe." This explains her confusion between tribes and *bairaks* noted earlier.

The peace-making is preceded by the "gjaksur" (he who owes blood) sending some friends to the "zoti i gjakut" (lord of blood) to ask for "besa" (promise of truce). This may be granted and further prolonged, and during the truce the gjaksur and his relatives are safe. To end the feud . . . twenty-four con-jurors are needed to swear the peace oath with the gjaksur. The plaintiff (lord of blood) has the right to name them. Or they may be named by the "bairaktar"* . . . . They examine the facts and decide if peace can be made and on what terms. If all twenty-four agree to take the peace oath with him he is then reckoned innocent, and he and his family do not owe any further blood, but pay blood gelt to the zoti i gjakut. This varied from about £25 to £50. . . .

Agreement having been come to, the whole party goes into the church (or mosque) before which the council has been held . . . and in the presence of the priest the gjaksur swears his innocence. He no longer owes blood. [After the others have all sworn] . . . the gjaksur and the zoti i gjakut frequently ratify the peace by swearing blood brotherhood. . . .

The oath being taken and the blood-gelt paid, the man is free to return to his burnt house and repair it. Being as a rule of solid stone, only the roof and woodwork need renewing. If he is a popular man, other members of the tribe help him both to pay the fine and start life again.*

Within the *bairak*, then, political mechanisms tended to reduce the frequency of murder by making it expensive. Murder between *bairaks* would likewise be discouraged if the central authority of the tribe were strong. Otherwise inter-*bairak* feuds could rage for decades before peacemaking. Whole tribes could likewise be in blood with each other, or with single *bairaks*, just as Mirdita was in blood with Lura during the period in which we are interested.

A central political authority tended to strengthen the ties between tribal members, and with the numerous council meetings that were called, members of the more prominent families got about frequently within their tribal boundaries. This would give them opportunity to arrange marriages some distance 619

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* In this whole section I have used Miss Durham's spelling of local names, now obsolete. Also, I have left the definite article before *zoti i gjakut*, where it is grammatically superfluous.

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from home. The blood feud, on the other hand, scattered them even more widely, and while most of the exiles returned home, some settled outside the mountains. Miss Durham discovered around Jakova, about 1912, small villages made up of people from Fan and other

619 Mirdite *bairaks*, from Shala, Berisha, and other
166 Gheg regions. Most of these exiles had probably left home involuntarily. The political framework of Gheg tribal society, particularly its warlike aspects, tends to promote emigration.

000 RITUAL LIFE

RITUAL LIFE

[124] 162 FORTY-TWO per cent of our series was recorded as Catholic, and the rest, except for one man,[1] as Moslem. These figures reflect the approximate proportions of the 2 faiths in Ghegnia. Their territorial distribution is shown on figure 3.[a] All of Mirdita, all of Dukagin, about half of Malsia e Madhe, most of Zadrima, and some *bairaks* of Mati, Puka, and Malsia e Jakovës are Catholic. Catholics occupy on the whole the least accessible areas, and those closest to Rome. Moslems occupy those nearest the direction of Istanbul, along the main roads, and in the vicinity of the larger towns.

795 793 While Islam is but 4 centuries old in Albania, Catholicism has been there at least 4 times as long. During the last 12 centuries many changes have taken place in the number and location of bishoprics and parishes, and in the number of communicants. At the time of our study, there was a bishop in Zadrima, to whom the parish priests of Mirdita reported; another took care of the territory north of the Drin. Some of the priests, like Father Krasnichi whom we visited in Mirdita, were native Albanians trained in Rome, others Austrians, Germans, or Italians. All were men of physical stamina and courage, for theirs was a difficult and rigorous assignment. Some were [792] Franciscans. In Zadrima, near the bishop's residence, was a nunnery with about a dozen inhabitants.

795 Many of the Moslems of northern Albania belong to an extremely heterodox brotherhood, that of the Bektashi. The tomb of the founder of the order lies in the inner recess of a long cave, really an ancient sandstone quarry, in the cliff outside the city of Cairo. His successor lives in a house at the entrance to the cave. The head of the order and all of his henchmen in residence are Albanians. The reason for this curious circumstance is that the Khedivial family of Egypt was originally Albanian, and they brought their spiritual chief, with the coffins

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[1] Both parents came from Dibra. He was Greek Orthodox. how or why I could not discover.

[a] [See cat 116, p. 35c--Analyst]

795 of his predecessors, to Cairo with them. Although for two generations the royal family has abjured the Bektashi tenets and worshipped according to Hanafi rites, the shrine and its occupants remain. Young men who wish to become dervishes go, if they are able, to Cairo,

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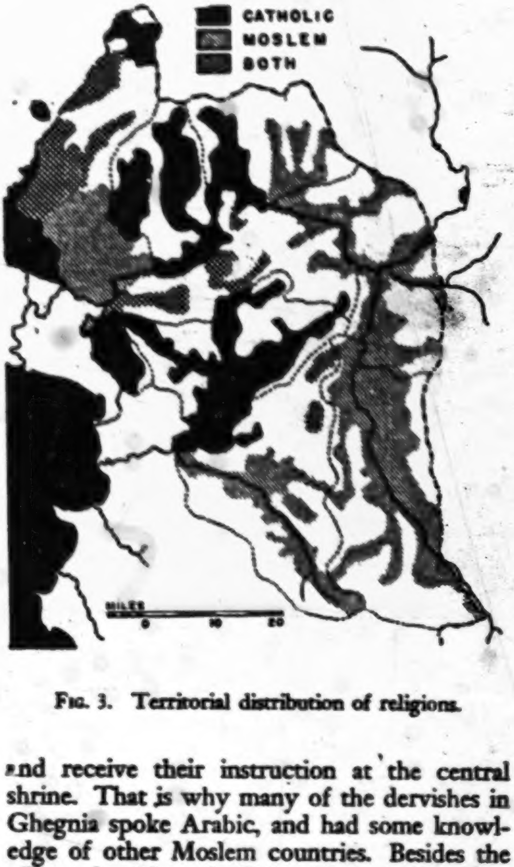

Fig. 3. Territorial distribution of religions.

and receive their instruction at the central
[91] shrine. That is why many of the dervishes in
Ghegnia spoke Arabic, and had some knowl-
edge of other Moslem countries. Besides the
[792] village dervishes, the Bektashis have a number
of monasteries, located in Has and Malsia e
Jakovës. We measured the abbot of one of
them, who was a Has man.

795 182 Despite its centuries in Ghegnia, Catholicism has failed to change many of the customs of the mountaineers, such as the *fis* system with cross-cousin marriage, trial marriage, the levirate, blood brotherhood, and the swearing of virginity. The reason is of course that the needs which these customs fill have not been eliminated. The Moslem faith permits them and thus has become more popular. Islam is deemed the more fashionable and more civilized religion. The people of the towns, rich men, army officers, and other sophisticates are usually Moslems. Most Catholics are poor. This attitude is of course a hold-over from the period of Turkish domination. Many Albanians admired the Turks. [191] Many spoke Turkish by preference. I recall once riding along a lane in Zadrima with my interpreter, Mr. Frasheri, who reprimanded 2 old harvesters whom we passed for talking Turkish together. Bishop Fan Noli suggests that they may have been Turkish-speaking refugees from the towns of Prizren, Peia, or Podgoritza.

795 262 273 There is a certain dietary difference between Catholics and Moslems. The former eat pork, especially in the wintertime. The Moslems curl up their nostrils and gag at the smell of pork, and will not enter a room where it is cooking. In its place they use much mutton fat in their cooking. Catholics drink wine when they can get it; Moslems care for their alcoholic needs with *raki*. These differences are probably of no biological importance, as far as the growth and development of the individual are concerned, but they do serve to intensify the mutual antipathy of the 2 religious groups and inhibit a genetic interchange.

582 178 795 In Lura, in a population not exceeding a few hundred individuals, Catholics and Moslems intermarry. In a single household the father may be Catholic, the mother Moslem, and the children will choose their own religions. This is the only place in Ghegnia where this happens. Lura is in process of change from Catholicism to Islam. As the latter gains ground, mixed households are found. The government of Ahmed Zog made much of this isolated situation, urging other Albanians to follow the example of the Lurans in the interests of national unity.

178 795 Various stages in this process of shifting are found in different tribes and *bairaks*. In Mer-

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178 795 [55] turi and Nikaj, the men adopt 2 sets of names, Moslem and Christian, and employ the former while traveling to avoid trouble. They get used to these names and in many cases use them at home. In Hoti, the *bairaktar* once led his men against the invading Serbs, with the help of the Turkish government. In gratitude for his brave and successful conduct the Turks granted him special privileges, and he went over, with his family, to Islam. The rest of the *bairak* is still mostly Catholic, but the tendency in such a case is for the others to follow the leader. In Lura, where mixed families are found, the Catholics have given up keeping pigs so as not to offend the Moslems, and celebrate Moslem festivals as well as Christian ones, to avoid trouble. Very rarely a Mirdite will marry a Moslem woman from Mati, but when he does she becomes Catholic.

797 144 When the Turks introduced Islam, all Ghegs were Catholics. Almost exclusively, the change has been in the Moslem direction. Hence we may assume that almost none of the present-day Catholics bear genetic elements brought in from outside the region by the Turks or their followers, while the same is not necessarily true of the Moslem Ghegs. *Bairak* by *bairak* and tribe by tribe, as conversion progressed, the line between the 2 religions has remained, by and large, a marital barrier. During the whole period of the Turkish rule, Catholics have furthermore been able to travel much less widely than Moslems, with resultant genetic implications.

771 In Albania one frequently hears the remark that "the Albanians are not very religious." This is usually said with pride, for the presence of 3 religions in so small a country is deemed a dangerous impediment to political unity. In one sense, the remark is quite true. Few Albanians are religious fanatics; few of them worry about their spiritual salvation. Most of the Catholics go to church with some regularity, and most of the Moslems keep Ramadan. However, their ancient way of life provides most of the ritual which they need to tide them over emotional crises, so that church and
771 596 mosque are in many ways superfluous. A man's first loyalty is to his "blood," that is, his extended family. He spends much of his time, effort, and material goods keeping the family together and avenging any deed which has up-

777 [596] set its internal stability. The very act of vengeance is a ritual, as is the constant repetition of
[608] the need for vengeance. The rites of blood brotherhood and godfatherhood are rituals performed by Catholic and Moslem alike.

776 Both Catholics and Moslems believe in a host of malevolent spirits which pay the mountains a seasonal visit in the springtime, and which can sometimes be kept at bay by the use of amulets. These evil spirits are of course the symbols of the general hunger, illness, and irritability which beset the mountaineers at
753 this critical season. Catholics and Moslems alike attribute non-traumatic illnesses to spells cast by magicians, through the agency of hair and nail clippings. Wasting illnesses, such as consumption and cancer, may be attributed to vampires, sucking their victim's blood.

754 A vampire is said to be a human being, usually but not always a woman, who can change herself into an insect and fly into a room in which her victim is sleeping. As she fills with the blood, she has to leave now and then to spit it out. A person who finds such a gobbet of blood on the path is lucky; he can wrap it up and keep it as an amulet to protect him against vampires—and incidentally probably expose himself and his family to tuberculosis.

When people are hungry and ill, it is easy to suspect others of evil magic. The person named as a witch or vampire will of course be someone whose actions are eccentric or mysterious, who is a cause of disturbance in the community, and whose loss will not be greatly felt. If a child is suffering from malnutrition its parents may accuse some old woman, and drag her from her house. They will accuse her of having sucked blood from the child, and force her to spit in the child's mouth. Under protest she may spit merely in order to get away. If the child recovers, then the parents are sure she is a vampire; if the child dies she was innocent for her spittle did not cure it. People do not like being accused of witchcraft, or of having their aged grandmothers hauled off for trial; such actions, like the very suspicion itself, may result in bloodshed.

782 The Ghegs are great oath-swearers. Between blood feuds rivals will swear to keep the peace, on a stone in the presence of the

782 elders. Even if they are persuaded to swear
on the cross, they will not forego the stone,
which is the symbol which gives their oath
787 validity. They are also great believers in
omens, and in divination. Men versed in this
skill read the future by observing the sternal
bones of fowl and the scapulae of sheep. I
have witnessed a performance of the latter.
The bone has its special divisions, each of
which has meaning. On the sheep's scapula
the joint socket is the house, and its depth or
shallowness indicates whether the house will
be empty or full of wealth. This can be used
to predict success or failure of crops. The
ridge on the blade shows whether or not flocks
will multiply. Small holes on the blade are
cradles, and the diviner can tell how close to
the family, i.e., the "house," the birth will be
by the distance from the socket. When you
hold the blade up to the firelight or lamp, the
shape and position of the marrow will tell
where and when there will be fighting.
Opaque white spots mean death, and their
position indicates whether they will be within
or without the household of the enquirer.

182 All of these rituals are concerned with the
788 maintenance of equilibrium in Gheg society.
Oaths give authority to agreements, and cannot
be broken until a crisis arrives which is
stronger than that which the oath-breaking
will produce. By clever use of the divining
bones, a knowledgeable man can evaluate the
state of affairs in his neighborhood, and give
warnings; he can also precipitate decisions
from wavering allies, for if he is a diviner of
reputation, his words will be believed. Very
often what he predicts will come true.

Special ritual routines common to members
of both official religions restore equilibrium
after the crises of birth, marriage, and death.
All of these rituals which reinforce their social
habits are of much greater importance to the
Ghegs than the rites of church or mosque,
which are not as well adjusted to this particular
671 form of society. Another such mechanism
is traditional law, codified and memorized as
the Law of Lek Dukagin, which expresses the
mountain attitude toward marriage and the
selection of wives, and toward the blood feud.
It serves to crystallize forms of behavior and
inhibit change in those who are trained from
childhood to believe in its infallible authority.

[See cat. 116, pp. 37a-b-Analyst]

533 Still another mechanism[1] is that of art, ex-
182 pressed chiefly in singing to the *oud*, or *gusle*,
[534] as it is more familiarly known to outsiders. Singing hour after hour to the accompaniment of this one-stringed instrument, and sometimes throughout the night, warriors recount the deeds of their ancestors, and even of their contemporaries. By using traditional verse forms and a stereotyped vocabulary they can compose new epics as they sing, and recite old ones verbatim. Like illiterate bards elsewhere, they have prodigious memories. *Gusle*-singing stirs the mountaineer to action as surely as bagpipe music fires the Highland Scot, thus rousing men to heroic deeds for which they may later pay dearly. It is a part of the whole com-

[1] [for maintaining equilibrium in Gheg society -- Analyst]

182 533 plex of feuding, like that other and minor art form, the embroidered and crocheted decorations on the mountaineer's clothing by which he announces defiantly from the limit of eyesight his exact familial and political affiliation.

All of these cultural mechanisms[1] belong to Moslems and Catholics without distinction. They make up by far the greater part of the emotional life of the people, and it is no wonder that Albanians say that they are not "religious." These customs are psychological means of reinforcing the habits of behavior by which the mountain people maintain their adjustment to their environment, and as such are pertinent to our present study.

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[1] [see cat. 116, pp. 37a–38b -- Analyst]

000 THE HISTORY OF MALSIA E GHEGNISË

000 HISTORY is the lifeblood of ethnography, and historians the physiologists of societies. The ethnographer's task is to describe a culture, telling where a given people live, how numerous they are, what technological means they employ to make their adjustments to the landscape, how their families are organized, what other institutions have arisen among them, for trade, for government, for foreign relations, and for the satisfaction of their ritual needs. Although his work is selective, that of the historian must be more so, for the historian is concerned with the motion of societies through time. He must select only those facts which are pertinent to his problem.

121 In this case our problem is to find out all we can about the origin of the Gheg people, their genetic continuity within their mountain stronghold, and the times, places of origin, and physical characteristics of any outsiders who may have breached it. Since there is, as biologists well know, a selection in migration, we would like to know when and to what extent immigrants have left this country.

172 These plans can only be partly consummated. History is particularly silent about refuge areas. The geographical factors which have sealed tribal Ghegnia off from the main stream of human migrations and cultural evolution have also hidden it from the eyes of chroniclers, hampering as well the work of archaeologists. Actually we know nothing about its history before the Iron Age.

Only one man, the Freiherr von Richtofen,[1] claims to have found any evidence of Pleistocene occupancy in Albania. He discovered 2 fragments of worked flint directly under a modern road bed at Mali Dajti just outside Tirana. There is no reason to believe that they were not gunflints. Pittard, in a cave near

[1] Richtofen, 1939, pp. 151–52.

[2] Pittard, 1921, pp. 271–74.

[3] Vulpe, 1932, pp. 132–45.

[4] Menghin, 1919–20, pp. 197–202; Nopcsa, 1910, pp. [31]–[32]; Ugolini, 1927, pp. 181–88.

[5] Dr. Robert Ehrich, who has carefully examined

172 Korça in the south, located an equally dubious Neolithic deposit.[2]‡He based his claim of Neolithic age on the shape of one pot, which could just as well have belonged to the Iron Age. Bronze Age finds have actually been made, but not within our territory. A bronze axe, found near Scutari,[3]‡has been attributed to the late Bronze Age, and is of a type which the Phoenicians are said to have traded with the barbarous inhabitants of the Mediterranean littoral. It has a down-flaring bit and a ring-grooved haft hole, not unlike the iron axes used in the mountains today. Some of the expensive bronze tools such as that described by Vulpe may have reached the mountain tribesmen in trade, but it is unlikely that the Phoenicians themselves wandered far from the sides of their ships, or remained in this desolate region any longer than necessary.

Bronze Age sites have never been located in the highlands. This is not for lack of archaeological research, since a number of Iron Age locations have been discovered and excavated in that area.[4]‡These sites consist of tumuli. Such grave-mounds have been excavated in Hoti (Malsia e Madhe), Dushmani (Malsia e Jakovës), Mirdita, and Mati. The material removed from them is of regular Hallstatt type; in fact, Menghin says that the objects from north of the Drin are identical with the type specimens from Glasinac and Dolje Dolina, type sites of the Hallstatt civilization in Bosnia.[5]

[173] This evidence confirms that of tradition, that the Gheg country was a part of the Illyrian domain. Two other sets of facts support this conclusion still further, the facts of modern language and of modern culture.

197 The Gheg language as spoken today is basically Illyrian—in fact, the only survivor of

[5] Dr. Robert Ehrich who has carefully examined the published reproductions of these objects and who is familiar with the Glasinac artifacts, states that the Albanian collections include Roman objects and others which are presumably Thracian. This evidence would set the date of the sites nearer to A.D. 1 than 500 B.C.

‡[For foot notes 2, 3 and 4 see p. 39 b
-- Analyst]

197 this once widely spoken group. G. S. Lowman[6] says of it,

> "The Albanian language constitutes a distinct branch in the Satem division of the Indo-European languages. It is the direct descendant of the ancient Illyrian of Roman times, together with some Thracian influences. . . . At the present time, two principal dialectal divisions exist, Geg or Northern, and Tosk or Southern, which are more or less mutually intelligible. . . .
>
> "In the course of Albanian history many foreign influences have come to play their part in making the [177] language what it is today. Although the essential structure of the language, and a fair share of the words in common use are of native origin, the vocabulary has been borrowed from outside sources to a far greater extent even than is the case of English. In 1891 Gustav Meyer stated in his etymological dictionary that of 5,140 root-words only 400 were of the original Albanian stock, that 1,420 were Romance, 540 Slavonic, 1,180 Turkish, 840 Greek, and over 700 indeterminable. Later scholars, however, have proved that a considerably larger proportion of words are truly Albanian."

181 Such careful observers of material culture as Nopcsa and Haberlandt have concluded that *the Ghegs*, in their tools, agricultural implements, furniture, costumes, and most other technological details *are still living in the Hallstatt Iron Age*.

174 A single conclusion is therefore as legitimate as it is obvious. *The mountains of Ghegnia were first effectively populated during the middle centuries of the first millennium before Christ*. The pioneers who took over this rugged landscape were Illyrians, whose central territory lay to the northwest. Since they had already lived in Bosnia and Montenegro, they were already adjusted to life in this environment.

172 Fortunately, the materials excavated at Glasinac,[7][1] the type site of the Illyrian Hallstatt culture, include skeletons as well as artifacts. The date of this cemetery is between 1000 and 500 B.C. The collection of 38 crania shows clearly that the Illyrians were not a homogeneous people in the racial sense. The majority of the skulls are long headed, and represent at least 2 contemporary varieties of Nordic. This is not surprising since most of the Iron Age

[1] [see Cat. 116, p. 40 b--Analyst]

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[6] Lowman, 1932, p. 271.

172 peoples of Europe were Nordic. However, 13 crania, or one-third of the total series, were brachycephalic. These skulls have flat occiputs, straight sidewalls, broad foreheads, and in the one example in which the nasal bones have been preserved, a long and aquiline nose. They are the skulls of Dinarics, and resemble both the Bronze Age Dinaric skulls from Cyprus, and the Bell Beaker Dinaric crania from early Bronze Age sites in Germany.

All of the evidence which we have indicates that close kinsmen of the Glasinac people were the very ones who settled Ghegnia, at just about the time the cemetery was in use. We have every reason to suppose that *the ancestors of the Ghegs*, in the last 500 years before the Christian era, their pioneer period, *were very much like the people whose remains were buried in the graveyard at Glasinac.* This means that among the Ghegs, characteristic Dinarics were present from the beginning, but probably as a minority in the population.

174 Let us return for a moment to the statement that the Ghegs are still living in the Hallstatt Iron Age. This means that no important changes have taken place in their technological processes. If the Illyrians had just as good equipment for tilling the soil, processing foodstuffs, building houses, weaving cloth, etc., as the modern Mountain Ghegs, then they were able to exploit the landscape just as efficiently as their modern descendants. The valleys and upland pastures of Ghegnia could thus have held as large a population then as today.

This assumption cannot be made without a certain amount of correction. The modern Ghegs grind their flour and full their cloth in mills operated by water power. This releases a certain amount of human energy for other pursuits. These mills must have been introduced after the initial settlement. Warfare, which is a characteristic mechanism of population control in upland Ghegnia, has also undergone changes. The Turks introduced both firearms and the *kulla*, or stone castle (fig. 8, *a*).✱ weapons of offense and defense. This combination made murder easier than before, and must have helped reduce the population. On the whole, the forces for increased use of

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[7] Weisbach, 1897a, pp. 80–85 and 1897b, pp. 562–76; Coon, 1939, pp. 184–85.

✱[See cat. 116, p. 108-- Analyst]

174 the land and decrease of manpower probably counterbalanced each other.

It must have taken several centuries for the pioneers to explore every valley, choose the most favorable sites, and put them into cultivation. In a few centuries more, less favorable lands which could support a thinner population would also have been cleared. But by the beginning of the Christian era, the time when the first outside influence, that of Rome, made itself felt on the fringes of the Gheg mountains, this region may well have been populated to its present capacity. This means that there was no room for Romans or anyone else to settle without armed invasion. Even with armed invasion, as many have discovered, the Gheg mountains are hard to take.

Biologically the significance of this is of course that while the original settlers of our area must have been a mixed lot, they were probably able to fill their country with progeny before any concerted attempts were made by outsiders to invade their territory. The [144] majority of them were undoubtedly Illyrians from Bosnia, while others may have been Thracians from the plains to the northeast. Racially they were probably a mixture of Nordics, Mediterraneans from the Adriatic littoral, brachycephals from the same region, and Pontic Mediterraneans from the Euxine borderlands. They were able to stew in their own genetic juice and produce their own variety of human beings.

175 Roman authors have much to say about the peoples all around Ghegnia, but very little about the mountaineers themselves. This silence is very significant. All of Ghegnia except for the southern portions of Mati and Dibra formed a part of the province of Dalmatia, while those 2 sections of tribes plus what is now central Albania went with Macedonia. The present Tosk country was part of Epirus, which was considered distinct from Greece. While the predecessors of the Tosks

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• Durham, 1928, p. 14.

• Strabonis Geographia, Book 7, p. 457, lines 3–6: ". . . et Drilo fluvius, quo adverso navigatur orientem versus usque ad Dardanicam."

or

καὶ Δρίλων ποταμὸς ἀνάπλων ἔχων πῶς ἕω, μέχρι τῆς Δαρδανικῆς. 1

1 [Cont. on p. 41b
--Analyst]

were Epirotes and those of the Ghegs Illyrians, the people in between were formed by a mixture of these 2 elements. Strabo, in Book Seven, enumerates the central Albanian tribes which were subdued by the Macedonians, and some of whom spoke 2 languages. He says that some of the tribes were constantly seeking to gain control over others, but that the Macedonians put an end to this rivalry. In 168 B.C. Macedonia became a Roman province. That the central Albanian tribes resembled the modern Ghegs in some respects is certified by their use of the word *peligo* (*plak*) for elder, the tribal name Emathia (*e Madhia*, the Great, nominative plural), and possibly the tribal name Molotti (*maltsor, mountaineer*).[8] 1/1

Strabo locates a people know as the Dardanians to the northeast of the Gheg country, on the Kossovo plain, beyond the upper reaches of the river Drin.[9] Strabo considered the Dardanians an utterly savage people, living in pits under dunghills and playing stringed instruments. Despite this cultural abasement, they furnished Rome with an emperor—Justinian. The country of the Dardanians, which the Romans conquered, was said to be heavily forested up to the neighborhood of Nissa, the modern Niš, an important crossroads town in Roman times as today. Peter the Hermit, who led a crusade through this country at the end of the 11th century (A.D. 1095–1121), walked 7 days through this forest, and finally reached Niš, which he found to be defended by stone walls, and to have 7 water-powered gristmills. In 1717 a British traveler (Lady Mary Wortley Montagu) found the forest still there, and infested with gangs of bandits.[10] In 1809 much of this forest was still left when the Serbian peasants revolted against the Turks, led by Karageorge. All of this means that as long as the plain of Old Serbia was forested, there was room in it for people to expand. It was not a center of population from which large migrations could be initiated.

I give this in both original tongues because it is a somewhat difficult passage to translate and because Miss Durham misunderstood it, placing the Dardanians in Albania.

1/1 [see p. 41a -- Analyst]

[10] Durham, 1928, pp. 232–34.

175 The evidence is excellent that in Roman times the geographical division of labor, by means of which the mountaineers exchanged their raw materials for processed goods in bordering market towns, had already begun. Since the earliest archaeological material in Albanian sites is either of Bosnian, Thracian, or Roman manufacture, this system must have been in force from the beginning of the Illyrian settlement. On the Adriatic side of the mountains small Roman trading posts have been located archaeologically at Berzumno (Vuksanlekaj, north of Scutari), Cinna (Koplik), and Iminacum (Iballja, in Puka).[11] The Romans also occupied Scutari (Scodra), Lesh (Lissus), and Durazzo (Dyrachium), and connected these 3 market towns with a road.

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491 At Durazzo this road turned eastward from the coast and went across country, following the lowest gap in the Dinaric chain north of the Gulf of Corinth, over to Lychnidus on Lake Ochrida. This highway skirted but did not traverse the Gheg mountains, crossing the Black Drin just south of the present tribal boundary of Dibra.

Another road, however, went straight across the mountains from Lissus (Lesh) south of the Drin.[12][1] It apparently followed the same course as the modern road which goes from Vau i Denjës in Zadrima to Puka, across the Mal i Zi and down to the bank of the Black Drin just a short distance south of its confluence with the White Drin. This road follows the south bank of the White Drin for about 18 miles, at which point the river makes a sharp bend to the north.

In Roman times the country beyond the confluence of the 2 Drins was part of the province of Upper Moesia. The road continued across this province to a place called Ulpiana in the Kossovo plain, probably near the modern town of Prishtina. From Ulpiana it went on to the Morava valley where it reached the river at Nissa, the modern city of Niš. This road was not the only Roman highway which crossed the Dinaric Alps from the Adriatic into the modern city of Niš. It was only one of 3 methods of getting from the Adriatic coast to the Danube valley over-

1/1 [see p. 42b -- Analyst]

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[11] Nopcsa, 1910, p. [31].

175 491 land. Far to the north, a highway connected Senia (Zengg) just south of Fiume, with Siscia (Zagreb or nearby) and the route down the Save. From Spalatum (Split) too it was possible to cross the watershed on Roman pavement. The *Via Ignatia*, across central Albania, offered a longer route to Niš, for at Heraclium (Bitolj) it met at right angles a road going north and south, one branch of which passed, via Scupi (Skoplje), to Ulpiana.

175 The Drin road cannot have been the most comfortable of these various routes. Although the Romans must have kept it in repair, there is little evidence of it left today. It can never have been suitable for wheeled traffic, for it is narrow, twisting, and steep, consisting in places of steps, hewn in the rock or built of masonry. For 2 nights the travelers must have slept in Gheg mountain territory. This means that the Romans must have built fortified stations for this purpose. The first night would take them to Picaria (Çeretë), the second to Creveni, near either the present Spash or Parmchi, on the south bank of the Drin a few miles below the confluence. The third night would take them out on the plain, on the way to Ulpiana. A Roman settlement at Gabuleum, somewhere near Gonaj or Zum in present-day Has territory, may have been the spot.

The transport of goods over this road, with processed materials moving east and raw materials west, must have furnished a strong temptation to the mountaineers on either side. The Romans must have kept it guarded, for otherwise ambushes would have been easy. Garrisons mean troops, and troops mean fraternization between imported soldiery and the local population. Perhaps many of the soldiers were recruited from Gheg tribes a short distance from their posts. Even so, some must have been outsiders, and we may expect that the genetic capsule of Ghegnia became somewhat unsealed during Roman times along the highway. This would affect principally the tribe of Puka, across which much of the road passes, and also the tribes of Luma and Has, which it skirts.

After the decay of the Western Empire the

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[19] Shepherd, 1921, map 39; Kiepert, 1894, map XVII, Illyricum et Thracia.

175 road must have been much less patronized, for there was no one either to keep it up or guard it. Furthermore, what goods would come out of Moesia and Dacia would go to Byzantium rather than to Rome. In the 4th and 5th centuries A.D., the Goths over-ran parts of eastern Ghegnia, and traditions about them remain in the tribe of Luma, where some of these northerners may have settled. In A.D. 535, Justinian defeated them and claimed Ghegnia for the Eastern Empire.

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797 It was probably just at the period when the traffic over the Puka road was at its height, about the 4th century of the Christian era, that the tribesmen on either side of it may have been first converted to Christianity. Constantine himself, the first Christian emperor, may have passed through Ghegnia, for he was a Dardanian, a native of Niš. Our first record of Christian establishments in the mountains is dated A.D. 877[13] when there was already a bishop at Pulati, and by the 14th century we hear of 2 bishoprics, Pulatenses Majores and Pulatenses Minores, which were united in 1520. Another bishopric had its seat in the village of Drivasto (Drishti), in Postripa.[14]

175 Early in the 6th century the southern Slavs invaded the Balkans. A century later some of them moved westward from the Plain of Kossovo through the Drin Gates into Gheg territory, probably following the old Roman road. Their arrival at the Adriatic is still memorialized by the Slavic name of the tribe Zadrima, and a number of other place names. For 700 years the Serbian kings maintained a nominal rule over this mountain country. Now and then they disturbed the Catholic Albanian population, as in 1335, when the Tzar Dushan 1 gave to the Orthodox monastery of Dechani[15] the land of the village of Summa, on the right bank of the Kiri in the Pulati bishopric, along with neighboring Albanian districts, and a number of bondsmen whose names read very much like those on our measurement blanks. Between 1372 and 1427, "Helena, widow of Stefan Dushan, and her son, Urosh [sic], 'vexed most bitterly the Catholics, and spoiled 1 [see p. 43b.- Analyst]

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[13] Durham, 1928, pp. 24–25, 28.

[14] Farlati, 1817, pp. ix–xiv, tells the story of these Albanian Bishoprics; see also Šufflay, 1916, p. 188.

175 them of their goods, and reduced them to extreme poverty.' "[16]

During the Slavic period it is likely that the invaders had some effect upon the genetic composition of the mountain people, for Slavic names, such as Orosh, are common enough in Ghegnia, the Slavs certainly had access to much of the country, and Slavic speech had a considerable effect on the Albanian vocabulary. This was not, however, as important an invasion from the standpoint of biological interest as others that followed.

During the brief period between the end of the Old Serbian Empire and the time of the Turks, the Ghegs were left alone. The Turks began their invasion of Albania at the end of the 14th century, after the battle of Kossovo, in 1389. They met in battle the formidable Scanderbeg[17] (George Castrioti), the most famous of all Ghegs. He and his successors held them off from his fortress at Kruja (or Croya) until after 1479, the date of the fall of Scutari. The Turks never won control of all the highlands. Indeed, all of Mirdita and Dukagin, and parts of other tribes, remained Catholic throughout the Turkish period. Remaining Catholic meant that they were able to keep their country free of Turks. It also [553] meant that they usually stayed at home. However, many of the Christians adopted Moslem names which they used when they left their tribal territory to visit market towns, and this custom was still going on in 1929.

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797 All of the Ghegs who were converted to Islam did not change their faith through necessity. Many of them saw solid advantages in making the shift. A Moslem could carry a gun openly anywhere, and could shoot Christians at will, for they were outlaws. He could travel in Turkish territory without having to worry about being caught, and he could obtain many economic advantages over his Christian relatives, whose marital arrangements, unlike his own, produced a religious conflict. He could join the Turkish army, and rise to high rank; many Turkish generals were Albanians. Other Albanians became high court officials. One of

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[15] Durham, 1928, p. 29.
[16] Durham, 1928, pp. 24-25
[17] See Fan Noli, 1947.

175 797 them founded the royal house of present-day Egypt. The Turks appreciated their Albanian subjects and favored them over many others. That is one reason why three-fourths of Albanians are still Moslem, and why Albania remained so long a part of the Turkish Empire.

175 177 Although the Turks probably did not add much genetically to the Gheg population, they did introduce some economic changes which may have had some effect on it. It was through the Turks that New World plants reached the Balkans, although in some places not before 1850. They added maize, haricot beans, and tobacco to the list of plants which would grow in the valleys and on the mountain slopes. Maize and haricot beans gave them new foodstuffs, but it is questionable if they yield more calories per acre than the earlier crops—small grains and broad-beans. Tobacco gave the mountaineers a new habit and a new need, and also a cash crop. On the debit side of the ledger, with their religion the Turks produced a prohibition against pork, and deprived their converts of an important food source.

Besides these agricultural and dietary changes the Turks introduced *hans*, or inns,[1] along the more traveled roads in Moslem territory. Some of these *hans* probably occupy the same locations as Roman hostels. The professions of *hanji* (innkeeper), and *kiraji* (renter of horses) seem to have been Turkish innovations. [66] In Turkish times, many Albanians migrated to other countries; tens of thousands went to the Plain of Kossovo, apparently from the Gheg country, and many others to Greece, where there are still Albanian-speaking districts in Attica and the Peloponnesus. Many thousands entered the Turkish army, and other government services. Meanwhile, tens of thousands of Christian Albanians, fleeing the Turks, settled in Italy and Sicily, where their descendants still maintain their ethnic identity.

Probably the most important single introduction of the Turks, however, was firearms. Gunsmiths in the market towns found the mountaineers eager to obtain the new weapons with which they could not only defend their home valleys from invaders, but also work off

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[18] See Jireček, 1916, pp. 63–93.

[1] [see cat 116, pp. 20b-21a -- Analyst]

175 their local grudges. Silversmiths did a heavy
177 business converting coin into ornaments for pistols and ball-boxes, ornate holster belts, and powder-horns. Feuding now became much easier and more lethal. After firearms, arrived the *kulla*, or stone castle.[1] Although this new house type offered some defense, it did not prevent the great loss of life that the new weapon had initiated.

175 Now that the Ghegs were divided into 2 religious groups, and had guns, the death rate must have increased. The Turks themselves accounted for some of the population loss. They destroyed all the towns of north Albania from Durazzo to Scutari,[18][2] and others in the mountains as well. For example, they dragged the leading men of the town of Drishti in Postripa, the seat of an early bishopric, to Scutari, where they beheaded them.[19]

Massacre and emigration reduced the population of certain sections of Ghegnia below the economic maximum for the first time since its settlement in the Hallstatt Iron Age, thus opening the way to new immigrants. These were Christian tribesmen from Bosnia and Herzegovina, squeezed out by the Turkish expansion, and particularly by the struggles between Turks and Slavs. They were neither Turkish nor Slavic, but the remnants of the pre-Slavic population, still speaking a latinized form of Illyrian, and Catholic. In speech and religion, they found themselves at home in Ghegnia.

173 Most of them arrived during the 16th century. In the *bairak* of Gruda, Miss Durham found 500 houses, 80 of old indigenous stock, tracing their ancestry to Berisha (Puka), while the other 420 were inhabited by people who claimed descent in the male line from immigrants, called Djell, who came down from Herzegovina about A.D. 1530. A few years later, at least 4 brothers entered the Malsia e Madhe country from Bosnia; they were Geg Laz, ancestor of the Piperi tribe in Montenegro, which is now Slavic in speech and Orthodox in religion; Vaso Laz, the ancestor of the similar tribe of Vasojevitch; Krasni Laz, ancestor of the *bairak* of Krasniqi in Malsia e Jakovës—most of whom are now Moslem, although a few are Catholics. Nik, the ancestor

[1] [see cat. 116, pp. 14b-15a -- Analyst]

[2] [see p.44a - Analyst]

[19] Durham, 1928, p.28.

173 of Nikaj, may have been either a fifth brother or a son of Krasni Laz.

The people of Shkrelli, comprising a whole *bairak*, are said to have come from Bosnia en masse about 1600, and taken over a valley whose inhabitants had been killed off and whose church, Shen Kerli (St. Charles, hence Shkrelli) destroyed. Three hundred out of 500 houses in Kastrati are said to be descended from a man called Delti, who came from the Kuchi region of Montenegro, with his 7 sons. He was, however, reputed to have been descended from Berisha, the oldest known *fis* in Albania. The 4 *bairaks* of Seitze, Vukli, Boga, and Nikshi in Klementi trace their descent from 4 sons of a man called Klimenti who fled from the neighborhood of Gusinje about A.D. 1600.

All of the inhabitants of Malsia e Madhe do not claim descent from these invading ancestors. Their traditions are so consistent, their genealogies so clear, that we cannot doubt that these invasions took place, or that earlier populations survived. In Gruda, 80 houses belonged to the Berisha *fis*, while in Hoti a small number of *anas*, or aborigines, remained. The newcomers intermarried with them. The descendants of these 2 population elements still intermarry regularly. Two hundred out of the 500 houses of Kastrati are pre-invasion, and are said to be of Slavic origin. Reçi includes a few houses of *anas*. The rest of the population, like Loya, claims as its ancestors refugees from Shlaku and Pulati. All in all, Malsia e Madhe seems to have borne the brunt of this Bosniak invasion, and to have derived from it a large part of its genetic composition (fig. 12, *c*).[1/A]

In other parts of Ghegnia we find less evidence of invasion. The Berisha *fis* has been traced back certainly to 1370, probably to A.D. 1270. If it is that old, it may well go back to the pre-Roman period. Merturi split off from Berisha about A.D. 1700. The 2 *bairaks* of Dushman, Temali and Dushmani, are known since 1402, when they appear in written records as allies of Venice. They are probably much older. The people of Drishti, whose predecessors were destroyed by the

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[30] The Dukagins are centuries older. See Gegaj, 1937, cited in Fan Noli, 1947.

[1/A] [See cat. 116, p. 112 -- Analyst]

173 Turks, came from different places. The people of Toplana were driven to their present mountain stronghold from Vasojevitch in Montenegro about 1450, being pushed out by immigrants from Herzegovina. The ancestors of Plani came from 3 sources: Klementi, Merturi, and indigenous *anas*. Those of Kiri were [61] from Kuchi and Ipek, in Montenegro. One hundred houses of Nikaj people are said to be descended from a daughter of Nikol by a gypsy, and are called Tsura. This is the only instance known of female descent, and indicates the relative social status of the alleged spouses.

The famous invasion of the Dukagin brothers, Shosh, Shal, Orosh, Spaç, and Kushnen, probably took place before the Bosniak migration.[20][1] Miss Durham derives them from the Pestriku mountains near Jakova, where they were part of the Ipek tribal confederacy. My informants named Marina *bairak* as their home. In Shala they are supposed to have found some small, dark people with whom they intermarried. A few of these *anas* stayed on, and there are said to be 8 houses of them at Abate in Lower Shala, while the rest immigrated to Dechani. The Mirdita brethren found the Dibri and Fan people ahead of them.

One tradition relates that the Dukagin *bairaks* of Mirdita did not stay long in their new home, but when the Turks had taken Scutari and were raiding the neighboring mountains, the settlers retreated to their ancient home, from which they did not return to Mirdita until around 1650. How true this is, and how many people, if any, it involved, cannot be determined.

[361] We know finally that Jakova town was settled by people from various parts of the Gheg mountains, and the same is true of Ipek. These were cities of refuge, like earlier towns before them. More recent than any of these is the village of Vraka, a community of a thousand people lying between Koplik and Scutari. This is the residence of Serbian-speaking, Orthodox farmers, whose ancestors fled from blood vengeance in various parts of Montenegro, Herzegovina, and Bosnia. They have not yet become absorbed, and with modern

[1] [see p. 45a - Analyst]

173 politics what they are, probably will not be. They serve our purpose of illustrating a principle of population movement in a feuding society.

This ends our history up to the final date of the ethnographic present as defined in chapter 1, "The Dinaric Problem."*

175 Turkish rule lasted in Albania until 1912. After the Balkan wars an opera bouffe kingdom was set up with the Prince of Wied as king, and the capital in Durazzo. During his uninspired reign an international boundary commission laid out the borders of the new state, and at every point where there was any question, Albania came out the loser. Gruda was given to Montenegro. The Grudans who survived this political change fled to Scutari. Hoti lost part of its land, particularly its winter pasture. The tribesmen of Klementi were so cut off that they could not drive their flocks to their winter pasture near Scutari without crossing Montenegrin territory, which would have been equivalent to losing their animals. The Serbs closed the border to mountaineers bringing their goods to Jakova to trade, and expelled many of the Albanians from both [114] that city and Ipek. They made it almost impossible to travel between Kukës and Prizren; in 1929 our party was held up a whole day while we were searched to the skin, ordered to read aloud all of our papers, accused of being renegade Croats, etc., and we finally got away only after a great deal of telephoning on the plea that one of us was dangerously ill. In Prizren we found the jail full of Albanians.

[361] Dibra as well was lost as a market town. Kukës sprang up as a makeshift metropolis, as did Peshkopia. Tradesmen and artisans, as we have seen, stole over the border from Jakova, Prizren, and Dibra, to set up shop in the new places. The boundary commission could have created no more international hatred if this had been its principal objective.

World War I followed immediately after these unwise decisions, and the powderpuff king ran away. An army of Serbs, fleeing for their lives, marched across Dibra and Mati, burning and looting as they passed, to seek refuge on Corfu. Austrian troops, at their heels, occupied Scutari and the Malsia e Madhe, as well as the region of Kukës. They built

*[See cat. 116, p. 56 -- Analyst]

175 a few roads and bridges, and found time to do some anthropometry.

642 After the war[1] Albania became a republic, with a parliament. Feudal and tribal, illiterate and immobilized by the lack of roads, the people were not prepared for self-government. 643 After a number of violent episodes Ahmed Zog, son of the *bairaktar* of Mat in the tribe of Mati, became dictator, and in 1929 proclaimed himself king. Hated by the people of Elbasan because he had jilted the daughter of Verlatsi, their most prominent citizen, he was despised by his fellow mountaineers and by the Tosks as well, most of whom saw in his rule a threat to their freedom. On the rare occasions when he dared leave his palace, he had all roofs and windows searched and guarded, and even the cypress trees searched; and then he sent a double ahead of him.

He did, however, make a number of wise moves. One was to employ Colonel Stirling, famed as a companion of Lawrence in Arabia, as his personal adviser. Another was to employ General von Mirdach of the Austrian army to set up his military machine. A third was to give the British General Percy a free 625 hand in organizing a gendarmerie. General Percy brought with him a staff of British officers, which included Colonel Martin and Major Glegg. These experienced men selected an elite group of mountaineers to police the highroads, and to report and put down trouble. For the first time in history someone was taking intelligent steps to rid the mountains of feuding.

[124] We measured 62 of these gendarmes, all local men. Twenty-one came from Luma, 17 from Mati, 10 from Puka, 6 from Malsia e Jakovës, 4 from Dibra, 3 from Dukagin, and one from Malsia e Madhe. The British officers very wisely used Ghegs in Gheg country. To have introduced outsiders would have made trouble. Many of the men were serving within their own tribes and *bairaks*; too often they were in blood elsewhere. This new occupation for mountaineers gave them a chance to see more of the world than before, for they were required to train in Tirana or Scutari. Although the gendarme system made little or no direct change in the genetics of the mountaineers, for these men marry as their fathers

[1] [World War I -- Analyst]

625 did, it let in new traders, craftsmen, and government officials, by the mere fact that the gendarmes secured the road and put down banditry.

631 643 In a vain attempt to deal the tribal system a deathblow, King Zog abolished all of the old divisions and boundaries, and all of the old system of government. He divided Albania into provinces, deliberately cutting across tribes and *bairaks* and ignoring natural geographical frontiers as completely as did the 1913 boundary commission.[1] Kukës and Peshkopia became centers of administration, as did a remote hamlet in Mati named Bureli. In these new places he set up prefects and secretaries and soldiers.

124 We measured one "secretary of commune" in Mirdita, whom the tribesmen ignored. He was a native of Elbasan. He employed a local man to guard the telephone line, his only link with the extra-feudal world. In Bureli we measured a secretary of court and a schoolteacher, both Mati natives. Others whom we did not measure were outsiders. In Kukës we measured a government clerk, a schoolteacher, and a turnkey in the jail. In Peshkopia our score was 3 government clerks, 2 Big Dibra men and one local; a secretary of court, from Big Dibra; and a local country schoolteacher.

These 7 civil service employees whom we included in our series were all the products of the imposition of Zog's government on the Mountain Ghegs. Of these only 4 came from outside the area. Three of these were part of the group that fled Big Dibra after 1913.

000 The history of the mountain people of northern Albania since 1930, while interesting, is beyond the scope of this report. Some later anthropologist may study it with profit to discover the changes, technological, institutional, and anatomical, which may have taken place since our series was measured. Before moving on, we offer the following summary of the

105 preceding chapters:[2]

1. As far as we know these mountains were uninhabited before 500 B.C. They were first effectively settled at this time or a little later by Illyrian-speaking Hallstatt Iron Age people moving southward and eastward from Bosnia.

2. The majority of the Hallstatt people in

[1] [see cat 116, p. 46a --Analyst]

[2] [see cat 116, pp. 3b-46a --Analyst]
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Bosnia were Nordic in cranial type. A minority consisted of planoccipital brachycephals.

3. The mountaineers have retained the core of their ancient language and the essential features of their original culture—in technology and social behavior—into the time period covered by our study.

4. From Roman times onward they have lived by a typically Iron Age regional and ethnic division of labor. The mountaineers farm and tend their herds, and exchange their raw and home-processed surplus materials with townsmen along their borders, receiving in exchange processed goods and skilled services.

5. The Romans introduced Christianity, which had little if any effect on their way of life. If anything it fortified their exogamic system of mating.

6. The mountains have been overpopulated since almost the first settlement. This has caused feuding and emigration. Many have left the mountains to settle elsewhere, few have entered.

7. At several periods outside peoples have seized control over the Drin highway and, to varying degrees of effectiveness, its more accessible side valleys. The Romans built the road, and Slavs and Turks followed them over it.

8. The Turks massacred many Ghegs in the Malsia e Madhe country. The wholly and partly empty villages were repopulated by immigrants from Bosnia. These were Catholic tribesmen, who spoke the parent language, Illyrian, in a semi-Romanized form. It differed little from the speech of the Ghegs themselves. These people were, in fact, a reinforcement from the earlier Gheg homeland, thrust out by the pressure of Slavs and Turks. They were a second wave of migration.

9. The Turks introduced firearms and fortified castles (*kullas*), thus increasing the tempo of feuding.

10. They also converted many of the mountaineers to Islam. This meant that Moslem Ghegs could circulate freely in other parts of the Ottoman Empire. In some of the Moslem areas the Gheg system of mating has become less strongly exogamic.

11. From the standpoint of theoretical genet-

ics, the Mountain Gheg population forms a (for Europeans) peculiarly closed breeding unit, within which mating proceeds along known rules. Except for the Bosnian invasion a dozen generations before the date of our sample, no new genetic elements of numerical importance can have been added since the first Iron Age settlement.

12. The Bosnians, who were derived from the same population as the earlier Gheg im-

105 migrants, settled north of the Drin, mostly in Malsia e Madhe. Their descendants have, by and large, remained there.

13. The tribal Ghegs grow their own food, village by village, and eat almost exclusively local products. Since their country varies greatly in geological base material, this series offers a splendid chance to study local growth differences in relation to differences in mineral soil content.

000 ETHNIC COMPOSITION OF OUR METRICAL SERIES

124 THE number of men whom we measured in Ghegnia depended on how widely we could travel, how much time we had, and how long it took to measure each man once we had persuaded the local people to submit to this nonsense. Before we had gone far we decided that 100 men per tribe was about our limit. This number is large enough to serve as a statistical sample, and it was about as many men as we could get to submit in each area without wearing out our welcome. Whenever we measured a man defective in some criterion, as, for example, with a bent back, or edentulous jaws, we counted him as one over the 100. Thus, in every criterion we could have a total of 100 or more. In Has, our series is larger, because on the last day more men appeared than we had expected and we could not stop measuring without giving offense.

We avoided measuring soldiers when we could, because they had been selected for stature. Only a few who were home on leave were included in our series. We also avoided measuring in cities, preferring to study our subjects in their native places. Thus we could be sure of what we were getting. One exception was made. In Scutari we measured the members of *bairaks* fugitive from Montenegro, particularly Gruda. Otherwise we would not have had them. Elsewhere measuring became somewhat of a ritual. The elders were usually present, and they would dictate the protocol. They would also hear what the younger men said about their family histories, and more than once corrections were made on the intervention of these elderly mentors. Only when they tried, once or twice, to have the tallest and strongest men measured first, was it necessary to interfere with their arrangements. In Kukës we measured in a restaurant. There our agents, soldiers and gendarmes, lured men in off the street, and our check on their provenience and relationships left something to be desired, as will shortly appear.

The composition of our tribal samples appears in detail in table 2.[1] As the reader can

[1] [See cat. 116, pp. 51-54--Analyst]

see, we tried to distribute our sample equably among the *bairaks*, with varying degrees of success. Klementi, which has 5 *fis*, produced 4 of our subjects by internal mating. The 3 apparently endogamous Gruda products reflect the mating of the 2 *fis*, Berisha and Djell, discovered by Miss Durham. The Hoti-Hoti man may have had a mother from the *anas*; the Kastrati-Kastrati man reflects the presence of 2 *fis*. Koplik and Greisha, being almost entirely Moslem, form what is virtually a unit. Shkrelli, Riola, Reçi, and Loya are mostly exogamous, while Postripa subjects were derived from local parents only. On the whole Malsia e Madhe forms an interbreeding population with little tendency for local marriages, except among the lacustrine *bairaks* of Koplik and Greisha, and in Postripa. Postripa should have been given separate treatment, as Miss Durham's evidence indicates, but it is now too late.

In Dukagin we measured at only one place, the hill of St. George on the boundary between Shoshi and Shala. Both Shoshi and Shala were partially endogamous, Shala predominantly so. This reflects the presence of *ana* households, and splits into 2 *fis* each. Toplana, Kiri, Dushman, and Pulati, all parts of the Lower Pulati group, are represented only on the maternal side. Since these people habitually marry across the river into the northern *bairaks* of Puka, we decided to concentrate on the Dukagin element in the tribe of that name. As in the case of Postripa, I feel that this was a mistake.

The sample for Malsia e Jakovës shows a more equable distribution. If Nikaj men were slighted, the mothers of all Merturi men may compensate. These 2 *bairaks*, being *fis*, intermarry habitually. In Has we did not discover that a second and very small *bairak*, Ershan, existed until our series was complete. In Luma we could not determine the *bairaks* of 8 men, all of whom said that their fathers and mothers came from a single place. Perhaps they were joking and making up silly names. That is one of the tribulations the physical anthropologist

124 has to face in the field. Half the Luma sample came from Biçani, which comprises over half the tribe. As one can readily see, these Moslems marry within their own *bairaks* most commonly.

614 634 In Puka it is manifest that Kabash and Çeret form each a single *fis*. Berisha, the oldest known *fis* in Ghegnia, has a companion *fis*, Thach, in its *bairak*, with which it sometimes marries. Buxhon and Iballja each have more than one *fis*, as do Puka and Mal i Zi. On the whole the *bairaks* of Puka, whether single or multiple as regards *fis*, are exogamous. Since marriage across the Drin is frequent, many of the men from Buxhon, Berisha, and Iballja may have had mothers from the Lower Pulati section of Dukagin.

We were able to get a complete list of the *fis* in the tribe of Puka, except for Mal i Zi, as follows:

1. *Kabash*, *bairak* and *fis*. Three hundred houses, located in Kabash, Puka, and Iballja.
2. *Marin*, a *fis* of 30 houses in Puka village of Puka *bairak*.
3. *Guian*, a *fis* of 3 or 4 houses only, in Puka village.
4. *Kashnet*, 20 houses, Puka *bairak* only.
5. *Shkrella*, 20 houses, Puka *bairak*, related to the Shkrelli people in Malsia e Madhe.
6. *Krasniq*, with obvious affiliations, 10 houses, Puka village.
7. *Shala*, with obvious affiliations, 60 houses, Puka *bairak*.
8. *Thach*, this is the only *fis* in Buxhon, and one of two in Kabash, the other being Kabash *fis*.
9. *Berisha*, *bairak* and *fis*, a single unit.
10. *Kcheira*, a *fis* in Çeret.
11. *Shosh*, with obvious affiliations, a *fis* in Çeret.
12. *Çereti*, also a *fis* in Çeret.

614 634 361 In Mal i Zi there are said to be many other *fis* besides these 12. The above list shows 7 different *fis* in the single bairak of Puka, with 3 of them limited to a single village. This situation reflects the location of Puka village

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[1] Kashnet and Guian of Puka also appear here. Vik, Mesouli, seem to be others.

614 634 361 at a natural stopping point on the Roman road, where other trails come in. It is also a trading center, and one of administration. Its geographical position has brought in people from many places, and it stands in striking contrast to the more isolated *bairaks* of the same tribe, which in some cases have only one *fis* each. If Mal i Zi has many *fis* as well, that is because it too is conveniently located on the road.

In Mirdita exactly the opposite situation is found; the 3 *bairaks* of Orosh, Spaç, and Kushnen all belong to one *fis*, although one village in Orosh is eligible for marriage with these Dukagini. This village was once part of [124] Kthella. Two of our subjects were the sons of women from this village. Fan and Dibri marry both with Dukagini and within their own *fis*, of which there are several.[1] In our series Kushneni married only Dibri, which was nearest; Fan mostly Orosh, for the same reason. One blank bears the astounding information that its subject was the son of an Orosh father and a Kushnen mother. This is undoubtedly some kind of a mistake, possibly similar to the situation noted above.

614 634 Zadrima is only one *bairak*, all Catholic except a few small villages nearest Scutari. Despite its lowland habitat it retains its tribal organization, as well as its Gheg speech, and hence was included in this series. We did not obtain a record of its *fis*.

All 4 *bairaks* of Mati contain 2 or more *fis* each. The 3-part Catholic *bairaks* in the north form an intermarrying group and married with Mirdita extensively in the old days. In the time of our series, Lura was in blood with the Mirdites and the exchange of wives had been broken off. Very rarely do these northerners intermarry with the men of Mat. If this job were to be done again, the 3 northern *bairaks* should be given separate consideration for they are a genetic unit apart from Mat. The northerners are frequently tall, the Mat men almost uniformly short. In Dibra the 4 *bairaks* were almost wholly endogamous, and again separate treatment would be profitable. If we had measured 600 more men, the series would have been a better one.

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ETHNIC COMPOSITION OF OUR METRICAL SERIES

TABLE 2: COMPOSITION OF TRIBAL SAMPLES.

FATHER	MOTHER	No.	RELIGION	NOTES
Malsia e Madhe				
Klementi	Klementi	4	Catholic	2 Vukli, 1 Nic Klemend
Klementi	Shkrelli	2	Catholic	
Gruda	Gruda	3	Catholic	
Gruda	Hoti	1	Catholic	
Gruda	Kuçi	2	Catholic	
Gruda	Triepsh	1	Catholic	
Hoti	Hoti	1	Moslem	
Hoti	Klementi	1	Catholic	
Hoti	Kastrati	3	Catholic	
Hoti	Gruda	3	Catholic	
Hoti	Triepsh	5	Catholic	
Kastrati	Kastrati	1	Moslem	
Kastrati	Hoti	6	Catholic	
Kastrati	Gruda	2	Catholic	
Koplik	Koplik	8	Moslem	
Koplik	Greisha	2	Moslem	
Koplik	Kraja (Yugo)	1	Moslem	
Koplik	Kastrati	1	Catholic	
Greisha	Greisha	1	Moslem	
Greisha	Riola	1	Moslem	
Greisha	Koplik	6	Moslem	
Shkrelli	Shkrelli	3	Catholic	
Shkrelli	Reçi	1	Catholic	
Shkrelli	Reçi	1	Moslem	
Shkrelli	Kastrati	3	Catholic	
Shkrelli	Klementi	3	Catholic	
Riola	Riola	1	Moslem	
Riola	Loya	1	Moslem	
Riola	Greisha	3	Moslem	
Riola	Koplik	2	Moslem	
Riola	Reçi	3	Moslem	
Riola	Shkrelli	1	Moslem	
Malsia e Madhe				
Reçi	Reçi	1	Moslem	
Reçi	Kastrati	1	Moslem	
Reçi	Kastrati	1	Catholic	
Reçi	Riola	2	Moslem	
Loya	Klementi	1	Catholic	
Loya	Kastrati	2	Catholic	
Loya	Hoti	2	Catholic	
Loya	Shkrelli	2	Catholic	
Loya	Riola	2	Catholic	
Loya	Reçi	3	Moslem	
Loya	Postripa	1	Moslem	
Postripa	Postripa	10	Moslem	
Total		105	53 Catholics, 52 Moslems	

Malsia e Madhe, summary

Bairak	FATHER ONLY	MOTHER ONLY	BOTH	TOTAL, BOTH OR EITHER
Klementi	2	5	4	11
Gruda	4	5	3	12
Hoti	12	9	1	22
Kastrati	8	11	1	20
Koplik	4	8	8	20
Greisha	7	5	1	13
Shkrelli	8	5	3	16
Riola	10	5	1	16
Reçi	4	8	1	13
Loya	13	1	0	14
Postripa		1	10	11
Triepsch	0	6	0	6
Kraja (Yugo)	0	1	0	1

FATHER	MOTHER	No.	RELIGION	NOTES
Dukagin				
Shoshi	Shoshi	4	Catholic	
Shoshi	Shala	16	Catholic	
Shoshi	Kiri	3	Catholic	
Shoshi	Dushman	1	Catholic	
Shoshi	Pulati (Kiri or Plani)	1	Catholic	
Shala	Shala	48	Catholic	
Shala	Shoshi	30	Catholic	
Shala	Kiri	1	Catholic	
Shala	Dushman	1	Catholic	
Shala	Toplana	1	Catholic	
Total		106	All Catholics	
Malsia e Jakovës				
Krasniqi	Krasniqi	3	Moslem	
Krasniqi	Gashi	16	Moslem	
Krasniqi	Bituç	2	Moslem	
Krasniqi	Vunshaj	4	Moslem	M. Yugoslavia
Krasniqi	Grasia	1	Moslem	M. Yugoslavia
Gashi	Gashi	20	Moslem	2 of Shala *fis*
Gashi	Krasniqi	16	Moslem	
Gashi	Bituç	7	Moslem	
Gashi	Kastrati	2	Moslem	Kastrati a *fis*
Gashi	Hoti	2	Moslem	Hoti *fis* in Yugo.
Gashi	Marina	1	Moslem	Marina *fis* in Yugo.
Gashi	Junik (sp. ?)	1	Moslem	Junik *fis* in Yugo.
Bituç	Krasniqi	1	Moslem	
Bituç	Gashi	3	Moslem	
Kastrati	Gashi	1	Moslem	
Marina	Krasniqi	1	Moslem	
Marina	Gashi	1	Moslem	
Marina	Bituç	1	Moslem	
Vunshaj	Krasniqi	1	Moslem	
Vunshaj	Gashi	3	Moslem	
Merturi	Nikaj	16	Catholic	
Nikaj	Merturi	1	Catholic	
Total		104	17 Catholics, 87 Moslems	
Has				
Has	Has (Vlana)	101	Moslem	No *bairak* data recorded. Probably no Ershan, all Vlana.
Has	Has (Vlana)	13	Catholic	
		114	13 Catholics, 101 Moslems	
Luma				
Biçani	Biçani	30	Moslem	
Biçani	Kalishi	6	Moslem	
Biçani	Ujmisht	4	Moslem	
Biçani	Dolovisht	3	Moslem	
Kalishi	Kalishi	5	Moslem	
Ujmisht	Ujmisht	23	Moslem	
Ujmisht	Biçani	2	Moslem	
Dolovisht	Dolovisht	6	Moslem	
Dolovisht	Biçani	1	Moslem	
Çaja	Çaja	1	Moslem	
Topojan	Topojan	2	Moslem	I do not know whether these places are *fis* or *bairaks*, nor where they are, except that they are all part of Luma.
Borfa	Borfa	1	Moslem	
Dom	Dom	1	Moslem	
Pakç	Pakç	1	Moslem	
Lofme	Lofme	1	Moslem	
Bele	Bele	1	Moslem	
Probres	Probres	1	Moslem	
Total		109	109 Moslems	
Puka				
Kabash	Puka	6	Moslem	
Kabash	Çeret	7	Moslem	
Kabash	Mal i Zi	6	Moslem	
Kabash	Buxhon	1	Moslem	
Kabash	Buxhon	1	Catholic	
Kabash	Iballja	1	Catholic	
Puka	Puka	5	Moslem	
Puka	Kabash	5	Moslem	
Puka	Kabash	1	Catholic	
Puka	Çeret	1	Moslem	
Puka	Çeret	1	Catholic	
Puka	Mal i Zi	1	Moslem	
Puka	Buxhon	1	Catholic	

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8: Coon E-5 (1929-30; 46-48) 1950 EG1 Albania EG1
Highland Ghegs

Father	Mother	No.	Religion	Notes
Puka				
Çeret	Puka	11	Moslem	
Çeret	Kabash	5	Moslem	
Çeret	Mal i Zi	1	Moslem	
Mal i Zi	Mal i Zi	6	Moslem	
Mal i Zi	Kabash	3	Moslem	
Berisha	Berisha (Thach)	2	Catholic	1 parent Thach.
Berisha	Çeret	2	Catholic	
Berisha	Mal i Zi	1	Catholic	
Berisha	Buxhon	6	Catholic	
Buxhon	Buxhon	2	Catholic	
Buxhon	Berisha	1	Catholic	
Buxhon	Iballja	1	Catholic	
Iballja	Iballja	6	Catholic	
Iballja	Kabash	4	Moslem	
Iballja	Puka	1	Moslem	
Iballja	Puka	1	Catholic	
Iballja	Mal i Zi	2	Moslem	
Iballja	Berisha	5	Catholic	
Iballja	Buxhon	3	Catholic	
Total		102	65 Moslems 37 Catholics	
Mirdita				
Dibri	Dibri	28	Catholic	
Dibri	Orosh	3	Catholic	
Dibri	Spaç	6	Catholic	
Dibri	Kushnen	6	Catholic	
Fan	Fan	3	Catholic	
Fan	Orosh	4	Catholic	
Fan	Kushnen	3	Catholic	
Fan	Spaç	1	Catholic	
Orosh	Orosh	2	Catholic	Mother's village formerly with Kthella.
Orosh	Fan	8	Catholic	
Orosh	Kushnen	1	Catholic	
Orosh	Dibri	1	Catholic	
Spaç	Fan	15	Catholic	
Spaç	Dibri	5	Catholic	
Kushnen	Dibri	15	Catholic	
Total		101	101 Catholics	
Zadrima				
Zadrima	Zadrima	92	Catholic	
Zadrima	Zadrima	13	Moslem	
Total		105	92 Catholics 13 Moslems	
Mati				
Mat	Mat	77	Moslem	
Mat	Lura	1	Moslem	
Lura	Lura	12	Moslem	
Lura	Lura	1	Catholic	
Lura	Selita	1	Catholic	
Lura	Kthella	1	Catholic	
Selita	Selita	3	Moslem	
Selita	Selita	3	Catholic	
Selita	Lura	1	Moslem	
Selita	Kthella	2	Catholic	
Kthella	Kthella	2	Catholic	
Total		104	10 Catholics 94 Moslems	
Dibra				
Stashani	Stashani	38	Moslem	
Sheheri Poshtar	Sheheri Poshtar	23	Moslem	
Sheheri Poshtar	Sheheri Poshtar	1	Orthodox	
Sheheri Epert	Sheheri Epert	5	Moslem	
Sheheri Epert	Poshtar	1	Moslem	
Reçi	Reçi	40	Moslem	
Total		108	107 Moslems 1 Orthodox	

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Intertribal Mixtures

Shala (Dukagin)	Klementi (MeM)	1	Catholic	
Luma	Dibra	1	Moslem	
Berisha (Puka)	Mirdita	1	Catholic	
Buxhon (Puka)	Malsia e Jakovës	2	Catholic	M. prob. Merturi
Spaç (Mirdita)	Kthella (Mati)	1	Catholic	
Fan (Mirdita)	Dibra	1	Catholic	
Reçi (Dibra)	Lura (Mati)	1	Moslem	
Reçi (Dibra)	Luma	1	Moslem	
Total		9	6 Catholics 3 Moslems	

Totals by Tribes

Malsia e Madhe	105
Dukagin	106
Malsia e Jakovës	104
Has	114
Luma	109
Puka	102
Mirdita	101
Zadrima	105
Mati	104
Dibra	108
Intertribal	9
Total	1067

Totals by Religions

Catholics	434
Moslems	632
Greek Orthodox	1
Total	1067

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OOO TABLE 3: MEASUREMENTS AND INDICES

TABLE 4: OBSERVATIONS

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TABLE 3: MEASUREMENTS AND INDICES

A. NUMBER/RANGE MEAN ± P.E.

Measurements	Total Series	MEM	DUK	MEJ	HAS	LUM	PUK	MIR	ZAD	MAT	DIB
Stature	1065/143-193 168.71 ± [illegible]	105/155-190 172.77 ± .41	106/155-190 173.52 ± .41	104/156-187 172.67 ± .36	113/143-193 170.82 ± .48	109/155-190 169.47 ± .38	102/152-184 169.17 ± .43	101/146-184 166.68 ± .38	104/149-181 166.66 ± .42	104/152-184 166.66 ± .41	108/152-187 166.42 ± .44
Span	1062/152-205 176.37 ± .17	105/161-199 180.03 ± .51	106/164-205 182.25 ± .45	102/161-186 178.74 ± .43	113/155-202 178.47 ± .51	109/156-193 173.97 ± .47	102/152-193 176.16 ± .47	101/156-190 173.64 ± .42	105/156-190 174.87 ± .47	104/155-190 171.87 ± .52	108/155-198 173.70 ± .54
Sitting height	1066/68-101 89.44 ± .06	105/81-101 90.82 ± .23	106/81-98 90.73 ± .21	103/84-101 91.00 ± .19	114/78-98 88.77 ± .24	109/80-101 89.20 ± .26	102/78-101 88.58 ± .28	100/78-95 87.43 ± .22	105/78-98 88.38 ± .23	104/78-98 88.81 ± .23	108/78-99 88.57 ± .22
Biacromial diameter	1067/31-48 38.59 ± .05	105/34-48 39.71 ± .14	106/31-48 40.37 ± .14	104/34-45 38.20 ± .13	114/31-45 38.30 ± .13	109/34-42 38.45 ± .10	102/34-42 37.81 ± .12	101/31-42 37.46 ± .12	105/31-45 37.94 ± .12	104/31-45 38.30 ± .14	108/31-45 37.94 ± .15
Bi-iliac	1067/22-39 30.44 ± .04	105/26-36 30.71 ± .11	106/26-36 31.19 ± .10	104/25-36 30.56 ± .12	114/25-39 31.13 ± .12	109/25-36 30.14 ± .11	102/26-39 30.36 ± .12	101/22-36 30.11 ± .12	105/22-36 29.78 ± .14	104/25-36 29.98 ± .12	108/25-36 30.66 ± .13
Chest breadth	1067/23-40 28.56 ± .04	105/23-34 29.40 ± .12	106/23-37 28.53 ± .12	104/23-34 28.71 ± .12	114/23-37 29.16 ± .12	109/23-34 28.56 ± .12	102/23-34 28.35 ± .12	101/23-34 28.05 ± .12	[illegible]/23-34 [illegible] ± .13	104/23-34 28.30 ± .11	108/23-40 28.23 ± .13
Chest depth	1068/18-35 24.29 ± .04	105/20-29 23.92 ± .11	106/20-35 25.24 ± .12	104/20-31 24.54 ± .11	114/18-29 24.42 ± .12	109/20-29 24.16 ± .09	102/20-33 23.96 ± .11	101/20-31 24.03 ± .12	104/20-31 24.52 ± .07	104/20-29 23.93 ± .12	108/20-29 23.82 ± .10
Head length	1067/154-211 188.18 ± .15	105/170-208 188.42 ± .46	106/170-205 189.90 ± .39	104/167-208 189.09 ± .49	114/167-211 184.86 ± .42	109/170-208 188.28 ± .42	102/167-208 186.42 ± .48	101/173-203 186.57 ± .45	105/170-199 183.15 ± .39	104/167-202 182.91 ± .45	108/164-203 184.86 ± .46
Head breadth	1067/138-179 157.78 ± .12	105/147-179 161.59 ± .37	106/147-176 160.06 ± .33	104/138-173 158.70 ± .39	114/138-176 157.87 ± .45	109/141-173 155.36 ± .36	102/141-170 156.19 ± .37	101/144-173 157.09 ± .39	105/144-173 158.74 ± .37	104/144-176 157.01 ± .38	108/138-176 156.43 ± .33
Head height	1067/110-145 128.34 ± .12	105/113-142 129.30 ± .17	106/113-145 137.36 ± .40	104/110-145 129.39 ± .39	114/110-145 128.46 ± .43	109/110-142 128.34 ± .36	102/113-145 128.49 ± .38	101/116-142 128.25 ± .36	105/113-145 130.47 ± .42	104/113-142 128.36 ± .39	108/113-145 126.51 ± .35
Min. frontial diameter	1067/89-128 108.86 ± .10	105/97-124 112.42 ± .31	106/97-120 109.98 ± .29	104/97-128 109.98 ± .30	114/89-124 107.28 ± .32	109/89-120 108.80 ± .31	102/97-124 108.78 ± .32	101/97-120 107.98 ± .30	105/93-128 107.70 ± .33	104/93-124 108.30 ± .28	108/97-124 109.82 ± .30
Bizygomatic diameter	1067/115-164 142.35 ± .12	105/120-164 144.30 ± .41	106/120-159 144.25 ± .38	104/125-159 142.80 ± .40	114/125-159 142.15 ± .35	109/130-154 142.15 ± .32	102/115-154 141.80 ± .38	101/130-159 142.85 ± .33	105/120-159 141.10 ± .40	104/122-153 141.40 ± .38	108/125-154 140.58 ± .31
Bigonial diameter	1067/89-133 107.70 ± .13	105/88-121 108.62 ± .41	106/90-125 109.10 ± .37	104/94-133 106.82 ± .40	114/90-135 108.14 ± .41	109/94-125 107.10 ± .35	102/90-125 107.30 ± .43	101/90-125 108.03 ± .39	105/[illegible]-135 107.[illegible] ± .41	104/94-125 107.46 ± .40	108/86-121 106.78 ± .38
Total face height*	921/95-144 123.90 ± .14	92/108-138 124.15 ± .52	101/110-144 132.85 ± .43	98/105-144 124.45 ± .48	93/110-144 128.30 ± .43	98/110-139 124.35 ± .37	92/95-134 121.15 ± .46	90/105-134 120.60 ± .43	98/105-139 122.90 ± .48	93/105-144 123.90 ± .49	95/105-139 124.05 ± .43
Upper face height*	921/55-89 73.55 ± .11	92/60-84 73.40 ± .37	101/60-84 73.60 ± .32	98/55-89 73.55 ± .35	93/65-89 74.70 ± .34	99/60-89 74.05 ± .32	92/60-84 72.50 ± .31	90/60-84 72.90 ± .35	98/55-84 72.65 ± .34	93/60-84 72.65 ± .37	95/60-89 73.55 ± .38
Nose height	1066/44-71 58.10 ± .08	105/48-71 58.56 ± .27	106/48-67 58.78 ± .25	104/44-71 57.86 ± .27	112/48-71 59.06 ± .29	109/48-71 58.45 ± .28	102/48-67 58.50 ± .25	101/44-67 58.26 ± .27	105/44-67 57.86 ± .27	104/48-71 58.14 ± .28	108/48-67 58.82 ± .25
Nose breadth	1066/22-48 33.77 ± .06	105/22-42 34.19 ± .20	106/28-42 34.07 ± .19	104/28-43 34.10 ± .18	113/28-48 34.70 ± .21	109/28-42 33.90 ± .18	102/28-43 33.29 ± .19	101/28-42 33.71 ± .20	105/28-42 33.26 ± .20	104/28-43 33.22 ± .19	108/28-43 33.63 ± .18
Indices											
Relative span	1060/96-115 103.94 ± .05	105/100-108 104.16 ± .14	106/98-111 105.02 ± .16	102/96-111 103.74 ± .17	112/98-111 104.40 ± .15	109/96-109 103.84 ± .16	102/98-111 104.12 ± .16	101/98-115 104.34 ± .16	104/98-113 104.74 ± .17	104/96-109 103.13 ± .10	108/98-108 103.08 ± .17
Relative sitting height	1063/42-59 52.76 ± .03	105/48-55 52.48 ± .09	106/48-55 53.38 ± .09	103/50-58 52.78 ± .08	113/48-58 52.58 ± .08	109/42-57 52.64 ± .11	102/48-57 52.80 ± .10	100/48-59 52.48 ± .10	104/48-59 53.30 ± .11	104/50-57 53.28 ± .10	108/48-57 52.80 ± .09
Relative shoulder height	1064/74-89 82.04 ± .03	105/80-85 82.12 ± .08	106/80-85 82.00 ± .06	104/80-87 82.28 ± .07	113/80-87 82.22 ± .07	109/80-85 81.86 ± .07	102/80-88 81.93 ± .08	101/74-89 81.82 ± .10	103/78-87 81.96 ± .09	104/80-87 81.96 ± .08	108/78-87 82.34 ± .08
Rel. shoulder breadth	1065/18-27 22.76 ± .02	105/20-27 22.94 ± .07	106/20-27 22.38 ± .07	104/20-27 22.84 ± .07	113/20-26 22.44 ± .07	109/20-26 22.82 ± .08	102/20-26 22.68 ± .08	101/18-28 23-40 ± .08	104/20-27 22.74 ± .08	104/20-27 22.80 ± .08	108/18-26 22.82 ± .08
Thoracic index	1068 84.94	105 81.36	106 88.47	104 85.33	114 83.71	109 84.58	102 84.58	101 85.63	104 85.90	104 84.63	108 84.39

*Corrected for face shortening.

8: Coon E-5 (1929-30; 46-48) 1950 EGI Albania EGI
Highland Ghegs

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Indices (Continued)	Total Series	MEM	DUK	MEJ	HAS	LUM	PUK	MIR	ZAD	MAT	DIB
Cephalic index	1067/70-99 84.84 ± .09	105/77-97 86.79 ± .35	106/74-97 84.84 ± .24	104/71-94 83.04 ± .26	114/71-97 85.58 ± .26	109/74-99 82.82 ± .27	102/74-97 83.76 ± .26	101/74-97 84.39 ± .27	105/77-97 86.67 ± .24	104/74-97 86.40 ± .27	108/74-97 84.96 ± .26
Length-height index	1067/58-81 69.02 ± .07	105/58-81 69.50 ± .22	106/61-78 67.28 ± .23	104/58-78 68.63 ± .22	114/58-78 69.77 ± .24	109/61-78 68.18 ± .21	102/64-81 69.08 ± .21	101/61-78 68.84 ± .22	105/64-81 71.45 ± .22	104/58-76 69.05 ± .25	108/61-78 68.66 ± .24
Breadth-height index	1067/67-99 81.47 ± .09	105/70-90 80.03 ± .24	106/70-93 79.73 ± .27	104/73-99 82.40 ± .26	114/67-93 81.50 ± .31	109/70-92 82.65 ± .26	102/73-93 82.43 ± .27	101/73-93 81.80 ± .24	105/73-93 83.31 ± .25	104/70-93 80.18 ± .26	108/70-93 81.08 ± .23
Fronto-parietal index	1067/57-88 69.07 ± .07	105/60-77 68.58 ± .18	106/60-86 69.19 ± .21	104/63-80 70.24 ± .21	114/60-80 68.09 ± .23	109/60-80 69.94 ± .22	102/60-77 69.58 ± .24	101/60-80 68.86 ± .23	105/60-77 69.08 ± .22	104/57-77 68.53 ± .22	108/60-77 69.70 ± .20
Cephalo-facial index	1067/73-105 90.28 ± .07	105/76-96 89.48 ± .21	106/73-99 90.11 ± .22	104/82-102 90.89 ± .22	114/70-99 90.36 ± .21	109/82-102 91.81 ± .22	102/76-99 90.53 ± .24	101/82-96 90.83 ± .20	105/76-96 89.88 ± .21	104/76-99 89.90 ± .23	108/76-105 90.02 ± .25
Zygo-frontal index	1067/64-96 76.74 ± .08	105/68-87 76.86 ± .23	106/68-95 76.98 ± .23	104/68-87 77.30 ± .23	114/64-83 76.54 ± .20	109/68-87 76.74 ± .23	102/68-91 76.94 ± .26	101/68-83 75.74 ± .22	105/64-91 76.90 ± .27	104/64-87 76.48 ± .25	108/68-91 77.46 ± .25
Fronto-gonial index	1067/70-124 98.90 ± .13	105/75-114 97.40 ± .42	106/80-114 98.90 ± .37	104/85-118 98.80 ± .37	114/70-124 100.55 ± .46	109/85-119 99.30 ± .37	102/80-109 99.00 ± .42	101/80-114 98.30 ± .46	105/85-119 99.35 ± .44	104/80-119 99.45 ± .49	108/80-119 99.00 ± .42
Zygo-gonial index	1067/57-95 75.73 ± .06	105/57-86 75.10 ± .29	106/62-88 75.85 ± .27	104/66-86 76.21 ± .23	114/66-86 76.12 ± .25	109/66-83 75.37 ± .24	102/60-95 75.94 ± .28	101/66-89 74.86 ± .26	105/66-89 76.12 ± .28	104/66-89 76.00 ± .25	108/[illegible]-86 75.88 ± .24
Facial index	921/74-109 87.06 ± .11	92/74-105 86.10 ± .42	101/74-101 85.72 ± .32	95/74-109 87.78 ± .37	93/78-105 88.35 ± .35	99/78-101 87.80 ± .26	92/74-101 85.93 ± .35	90/74-97 85.90 ± .30	98/78-101 87.33 ± .35	93/74-105 87.37 ± .36	85/78-97 87.78 ± .27
Upper facial index	921/37-69 51.41 ± .06	92/43-60 50.73 ± .27	101/43-69 50.86 ± .24	95/37-66 51.80 ± .26	93/46-66 54.35 ± .28	99/40-60 51.97 ± .22	92/43-63 51.21 ± .23	90/43-60 49.61 ± .22	98/43-60 51.75 ± .23	93/43-60 51.58 ± .27	85/43-63 53.25 ± .28
Nasal index	1056/40-83 58.38 ± .12	105/40-71 58.82 ± .41	106/44-79 60.06 ± .40	104/48-79 59.50 ± .36	113/44-75 57.80 ± .36	108/44-71 58.18 ± .33	102/44-79 59.22 ± .42	101/44-75 58.22 ± .37	105/40-75 57.62 ± .41	104/40-75 57.56 ± .45	108/44-83 57.82 ± .31

B. STANDARD DEVIATION ± P.E.

Measurements	Total Series	MEM	DUK	MEJ	HAS	LUM	PUK	MIR	ZAD	MAT	DIB
Stature	6.72 ± .10	6.24 ± .29	6.21 ± .29	5.52 ± .26	7.28 ± .33	5.91 ± .27	6.42 ± .30	5.82 ± .28	6.33 ± .30	6.21 ± .29	6.78 ± .31
Span	8.01 ± .12	7.68 ± .36	6.90 ± .32	6.51 ± .31	8.10 ± .36	7.29 ± .33	7.11 ± .34	6.27 ± .30	7.17 ± .33	7.92 ± .37	6.26 ± .30
Sitting height	3.89 ± .05	3.45 ± .16	3.24 ± .15	2.88 ± .14	3.84 ± .17	3.96 ± .18	3.93 ± .19	3.27 ± .16	3.48 ± .16	3.54 ± .17	3.42 ± .16
Biacromial diameter	2.19 ± .03	2.13 ± .10	2.07 ± .10	2.01 ± .09	2.13 ± .10	1.62 ± .07	1.86 ± .09	1.98 ± .09	1.89 ± .09	2.16 ± .10	2.31 ± .11
Bi-iliac	1.89 ± .03	1.71 ± .08	1.47 ± .07	1.77 ± .08	1.86 ± .08	1.71 ± .08	2.01 ± .09	1.83 ± .28	2.07 ± .10	1.86 ± .09	2.04 ± .09
Chest breadth	1.89 ± .03	1.86 ± .09	1.89 ± .09	1.77 ± .08	1.83 ± .08	1.88 ± .08	1.77 ± .08	1.77 ± .08	2.04 ± .09	1.72 ± .08	2.04 ± .09
Chest depth	1.78 ± .03	1.72 ± .08	1.68 ± .08	1.70 ± .08	1.92 ± .08	1.42 ± .06	1.70 ± .08	1.84 ± .09	1.04 ± .05	1.78 ± .08	1.50 ± .07
Head length	7.08 ± .10	6.90 ± .33	6.00 ± .28	7.32 ± .34	6.60 ± .29	6.51 ± .30	7.26 ± .34	6.89 ± .32	6.00 ± .28	6.84 ± .32	6.90 ± .32
Head breadth	6.00 ± .09	5.64 ± .26	5.07 ± .23	5.88 ± .28	7.05 ± .31	5.33 ± .25	5.52 ± .26	5.88 ± .28	5.55 ± .26	5.82 ± .27	5.13 ± .24
Head height	6.03 ± .09	5.61 ± .26	6.18 ± .29	5.73 ± .27	6.81 ± .30	5.55 ± .25	5.73 ± .27	5.34 ± .25	6.45 ± .30	5.88 ± .28	5.43 ± .25
Min. frontal diameter	4.92 ± .07	4.68 ± .22	4.20 ± .19	4.60 ± .22	5.08 ± .23	4.76 ± .22	4.80 ± .23	4.52 ± .21	4.96 ± .23	5.40 ± .25	4.56 ± .21
Bizygomatic diameter	5.65 ± .08	6.30 ± .29	5.85 ± .27	7.40 ± .35	5.50 ± .25	4.95 ± .23	5.70 ± .27	4.85 ± .23	6.15 ± .29	5.81 ± .27	5.40 ± .25
Biogonial diameter	6.12 ± .09	6.20 ± .29	5.60 ± .26	6.00 ± .28	6.48 ± .29	5.48 ± .25	6.44 ± .30	5.88 ± .28	6.20 ± .29	6.04 ± .28	5.82 ± .27
Total face height*	6.50 ± .10	6.95 ± .37	6.35 ± .30	7.00 ± .34	6.15 ± .30	5.50 ± .26	6.40 ± .32	5.70 ± .30	6.75 ± .33	6.60 ± .33	5.85 ± .30
Upper face height*	5.00 ± .08	5.00 ± .26	4.70 ± .22	5.10 ± .25	4.85 ± .24	4.72 ± .23	4.40 ± .22	4.60 ± .26	5.00 ± .24	5.35 ± .26	5.25 ± .27
Nose height	4.20 ± .06	4.16 ± .10	3.84 ± .18	4.04 ± .19	4.40 ± .20	4.28 ± .20	3.72 ± .18	4.03 ± .19	4.12 ± .19	4.28 ± .20	3.88 ± .18
Nose breadth	2.76 ± .04	3.06 ± .14	2.97 ± .14	2.37 ± .11	3.27 ± .15	2.76 ± .13	2.88 ± .14	2.94 ± .14	3.03 ± .14	2.94 ± .14	2.73 ± .13
Indices											
Relative span	2.56 ± .04	2.20 ± .10	2.48 ± .11	2.60 ± .12	2.24 ± .11	2.42 ± .11	2.26 ± .11	2.88 ± .13	2.60 ± .12	2.46 ± .12	2.64 ± .12
Relative sitting height	1.50 ± .02	1.44 ± .07	1.38 ± .06	1.26 ± .06	1.22 ± .06	1.76 ± .08	1.50 ± .07	1.48 ± .07	1.62 ± .08	1.46 ± .07	1.48 ± .07
Rel. shoulder height	1.24 ± .02	1.14 ± .05	.96 ± .05	1.12 ± .05	1.14 ± .05	1.06 ± .05	1.18 ± .06	1.34 ± .07	1.30 ± .06	1.24 ± .06	1.36 ± .06
Rel. shoulder breadth	1.30 ± .03	1.18 ± .05	1.12 ± .05	1.06 ± .05	1.12 ± .05	1.00 ± .05	1.14 ± .05	1.18 ± .06	1.20 ± .06	1.34 ± .06	1.32 ± .06
Thoracic index											
Cephalic index	4.29 ± .06	3.81 ± .18	3.80 ± .17	4.23 ± .20	4.30 ± .20	4.14 ± .19	3.93 ± .19	3.96 ± .19	3.63 ± .17	4.11 ± .19	3.96 ± .18
Length-height index	3.63 ± .05	3.33 ± .15	3.48 ± .16	3.36 ± .16	3.91 ± .17	3.30 ± .15	3.13 ± .15	3.27 ± .16	3.39 ± .16	3.84 ± .18	3.60 ± .17

*Corrected for face shortening.

8: Coon E-5 (1929-30; 46-48) 1950 EGI Albania EGI
Highland Ghegs

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Indices (Continued)	Total Series	MEM	DUK	MEJ	HAS	LUM	PUK	MIR	ZAD	MAT	DIB
Breadth-height index	4.17 ± .06	3.72 ± .17	4.11 ± .19	3.90 ± .18	4.05 ± .19	4.05 ± .19	4.08 ± .19	3.57 ± .17	3.81 ± .18	3.93 ± .18	3.60 ± .17
Fronto-parietal index	3.39 ± .05	2.79 ± .13	3.27 ± .15	3.18 ± .15	3.72 ± .17	3.30 ± .15	3.57 ± .17	3.48 ± .17	3.30 ± .15	3.33 ± .18	3.03 ± .14
Cephalo-facial index	3.48 ± .05	3.12 ± .15	3.39 ± .16	3.42 ± .16	3.27 ± .15	3.33 ± .15	3.57 ± .17	2.97 ± .14	3.18 ± .15	3.48 ± .16	3.78 ± .17
Zygo-frontal index	3.72 ± .05	3.56 ± .17	3.52 ± .16	3.53 ± .16	3.16 ± .14	3.52 ± .16	3.88 ± .18	3.38 ± .16	4.12 ± .19	3.72 ± .17	3.84 ± .18
Fronto-gonial index	6.45 ± .09	6.40 ± .30	5.60 ± .26	5.60 ± .26	7.30 ± .33	5.70 ± .26	6.30 ± .30	6.90 ± .33	6.65 ± .31	6.90 ± .32	6.40 ± .28
Zygo-gonial index	3.99 ± .06	4.41 ± .21	4.11 ± .19	3.81 ± .18	4.02 ± .18	3.68 ± .17	4.20 ± .20	3.93 ± .19	4.32 ± .20	3.84 ± .18	3.72 ± .17
Facial index	5.04 ± .08	5.64 ± .30	4.80 ± .23	5.29 ± .26	5.00 ± .25	4.20 ± .20	5.04 ± .25	3.98 ± .21	5.10 ± .25	5.28 ± .26	4.16 ± .19
Upper facial index	3.83 ± .06	3.66 ± .27	3.54 ± .17	3.69 ± .18	3.99 ± .20	3.24 ± .16	3.24 ± .16	2.97 ± .16	3.33 ± .16	3.80 ± .19	3.86 ± .21
Nasal index	6.04 ± .09	6.28 ± .29	6.12 ± .28	5.40 ± .25	6.00 ± .27	5.06 ± .23	6.32 ± .30	5.56 ± .26	6.24 ± .29	6.78 ± .32	5.84 ± .27

C: COEFFICIENT OF VARIATION ± P.E.

Measurements											
Stature	3.96 ± .06	3.61 ± .17	3.58 ± .17	3.20 ± .15	4.25 ± .19	3.49 ± .16	3.70 ± .18	3.40 ± .17	3.70 ± .18	3.72 ± .17	4.03 ± .1
Span	4.54 ± .09	4.27 ± .20	3.79 ± .18	3.64 ± .17	4.54 ± .20	4.19 ± .19	4.04 ± .19	3.61 ± .17	4.10 ± .19	4.61 ± .22	4.77 ± .2
Sitting height	4.13 ± .09	3.80 ± .18	3.57 ± .17	3.16 ± .15	4.20 ± .19	4.43 ± .20	4.30 ± .21	3.74 ± .18	3.94 ± .18	3.99 ± .19	3.86 ± .1
Biacromial diameter	5.68 ± .08	5.36 ± .25	5.13 ± .24	5.12 ± .24	5.56 ± .25	4.21 ± .19	4.91 ± .23	5.29 ± .25	4.96 ± .23	5.64 ± .26	6.00 ± .3
Bi-iliac	6.21 ± .13	5.57 ± .26	4.71 ± .22	5.79 ± .27	5.97 ± .27	5.67 ± .26	6.62 ± .31	6.09 ± .29	6.95 ± .32	6.21 ± .29	6.65 ± .3
Chest breadth	6.62 ± .14	6.32 ± .29	6.62 ± .31	6.17 ± .29	6.26 ± .28	6.51 ± .30	6.24 ± .29	6.31 ± .30	7.11 ± .33	5.74 ± .27	7.23 ± .3
Chest depth	7.34 ± .15	7.19 ± .33	7.45 ± .35	6.93 ± .32	7.80 ± .35	5.88 ± .27	7.09 ± .33	7.66 ± .36	4.24 ± .20	7.44 ± .35	6.30 ± .2
Head length	3.80 ± .06	3.21 ± .15	3.16 ± .15	3.87 ± .18	3.58 ± .16	3.46 ± .16	3.89 ± .18	3.59 ± .17	3.28 ± .15	3.74 ± .17	3.74 ± .1
Head breadth	3.80 ± .06	3.49 ± .16	3.17 ± .15	3.75 ± .18	4.47 ± .20	3.85 ± .18	3.53 ± .17	3.74 ± .18	3.50 ± .16	3.69 ± .17	3.29 ± .1
Head height	4.70 ± .10	4.42 ± .21	4.84 ± .22	4.43 ± .21	5.30 ± .24	4.33 ± .20	4.48 ± .21	4.16 ± .20	4.94 ± .23	4.65 ± .22	4.29 ± .2
Min. frontal diameter	4.52 ± .09	4.19 ± .19	3.92 ± .18	4.19 ± .20	4.74 ± .21	4.37 ± .20	4.41 ± .21	4.19 ± .20	4.61 ± .21	4.90 ± .23	4.19 ± .1
Bizygomatic diameter	3.97 ± .06	4.37 ± .20	4.04 ± .19	5.19 ± .24	3.87 ± .17	3.48 ± .16	4.03 ± .19	3.40 ± .16	4.38 ± .20	4.11 ± .19	3.84 ± .1
Bigonial diameter	5.68 ± .11	5.71 ± .27	5.13 ± .24	5.51 ± .26	5.99 ± .27	5.12 ± .23	6.00 ± .28	5.51 ± .26	5.78 ± .27	5.62 ± .26	5.84 ± .2
Total face height*	5.25 ± .08	5.90 ± .29	5.13 ± .24	5.62 ± .27	4.87 ± .24	4.42 ± .21	5.28 ± .26	4.73 ± .25	5.40 ± .27	5.34 ± .26	4.73 ± .2
Upper face height*	6.80 ± .11	6.81 ± .36	6.40 ± .30	6.93 ± .34	6.32 ± .31	6.37 ± .31	6.07 ± .30	6.31 ± .34	6.86 ± .33	7.37 ± .36	7.14 ± .3
Nose height	7.23 ± .15	7.10 ± .33	6.78 ± .31	6.98 ± .33	7.34 ± .33	7.32 ± .33	6.58 ± .31	7.00 ± .33	7.12 ± .33	7.38 ± .34	6.62 ± .3
Nose breadth	8.17 ± .17	8.95 ± .42	8.72 ± .40	6.95 ± .33	9.40 ± .42	8.31 ± .38	8.85 ± .41	8.72 ± .41	9.11 ± .42	8.85 ± .41	8.07 ± .3
Indices											
Relative span	2.40 ± .05	2.11 ± .10	2.38 ± .11	2.51 ± .12	2.24 ± .10	2.35 ± .11	2.17 ± .10	2.57 ± .12	2.48 ± .12	2.39 ± .11	2.88 ± .1
Relative sitting height	2.84 ± .06	2.74 ± .13	2.63 ± .12	2.35 ± .11	2.51 ± .11	3.33 ± .15	2.84 ± .13	2.82 ± .13	3.05 ± .14	2.74 ± .13	2.77 ± .1
Relative shoulder height	1.51 ± .03	1.39 ± .06	1.20 ± .06	1.38 ± .06	1.39 ± .06	1.32 ± .06	1.44 ± .07	1.88 ± .09	1.58 ± .07	1.51 ± .07	1.65 ± .0
Rel. shoulder breadth	5.27 ± .11	5.06 ± .24	4.79 ± .22	4.64 ± .22	4.99 ± .22	4.38 ± .20	5.07 ± .24	5.27 ± .25	5.28 ± .25	5.85 ± .27	5.84 ± .2
Thoracic index											
Cephalic index	5.06 ± .10	4.39 ± .20	4.26 ± .19	5.09 ± .24	5.26 ± .23	5.01 ± .23	4.89 ± .22	4.69 ± .22	4.19 ± .20	4.75 ± .22	4.69 ± .2
Length-height index	5.26 ± .11	4.79 ± .22	5.17 ± .24	4.90 ± .23	5.46 ± .24	4.84 ± .22	4.52 ± .21	4.75 ± .23	4.74 ± .22	5.58 ± .26	5.27 ± .2
Breadth-height index	5.12 ± .11	4.65 ± .22	5.15 ± .24	4.73 ± .22	6.08 ± .24	4.69 ± .22	4.95 ± .23	4.38 ± .21	4.63 ± .22	4.90 ± .23	4.44 ± .2
Fronto-parietal index	4.91 ± .10	4.07 ± .19	4.73 ± .22	4.53 ± .21	5.46 ± .24	4.85 ± .22	5.13 ± .24	5.05 ± .24	4.89 ± .23	4.88 ± .23	4.35 ± .2
Cephalo-facial index	3.86 ± .08	3.49 ± .16	3.76 ± .17	3.76 ± .18	3.62 ± .16	3.63 ± .17	3.94 ± .19	3.27 ± .16	3.58 ± .17	3.88 ± .18	4.30 ± .1
Zygo-frontal index	4.85 ± .10	4.63 ± .22	4.57 ± .21	4.55 ± .21	4.13 ± .18	4.59 ± .21	5.04 ± .24	4.33 ± .21	5.36 ± .25	4.87 ± .23	4.86 ± .2
Fronto-gonial index	6.52 ± .13	6.57 ± .31	5.86 ± .27	5.66 ± .26	7.26 ± .32	5.74 ± .26	6.36 ± .30	7.02 ± .33	6.60 ± .31	6.94 ± .33	6.53 ± .3
Zygo-gonial index	5.27 ± .11	5.87 ± .27	5.42 ± .25	4.61 ± .22	5.28 ± .24	4.86 ± .22	5.53 ± .26	5.35 ± .26	5.68 ± .26	5.06 ± .24	4.90 ± .2
Facial index	5.73 ± .09	6.55 ± .34	5.60 ± .27	6.01 ± .29	5.60 ± .28	4.78 ± .23	5.86 ± .29	4.61 ± .25	5.84 ± .28	6.02 ± .30	4.77 ± .2
Upper facial index	7.06 ± .11	7.21 ± .38	6.99 ± .33	7.12 ± .35	7.34 ± .38	6.23 ± .30	6.33 ± .31	6.11 ± .33	6.43 ± .31	7.37 ± .36	7.26 ± .3
Nasal index	10.35 ± .21	10.66 ± .50	10.19 ± .47	9.08 ± .42	10.30 ± .46	8.88 ± .41	10.07 ± .50	9.55 ± .45	9.83 ± .46	8.74 ± .41	8.70 ± .4

*Corrected for face shortening.

8: Coon E-5 (1929-30; 46-48) 1950 EGI Albania EGI
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TABLE 4: OBSERVATIONS

	Total Series		MEM		DUK		MEJ		HAS		LUM		PUK		MIR		ZAD		MAT		DIB	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
I. BODY																						
Total	1066		105		106		J4		114		109		102		101		104		104		108	
General musculature																						
ssm	2	.19											1	.98	1	.99						
sm	200	18.76	18	17.14	5	4.72	12	11.54	19	16.67	14	12.84	19	18.63	27	26.73	30	28.85	27	25.96	28	25.93
+	650	60.98	64	60.95	62	58.49	81	77.88	76	66.67	76	69.72	57	55.88	47	46.53	62	59.62	59	56.73	62	57.41
+ +	213	19.98	23	21.90	39	36.79	11	10.58	19	16.67	19	17.43	24	23.53	26	25.74	12	11.54	18	17.31	18	16.67
+ + +	1	.09											1	.98								
Total	1067		105		106		104		114		109		102		101		105		104		108	
Neck, length																						
ssm	4	.37	1	.95					2	1.75					1	.99						
sm	358	33.58	20	19.05	28	26.42	14	13.46	50	43.86	35	32.11	35	34.31	54	53.47	29	27.62	49	47.12	39	36.11
+	641	60.07	78	74.29	69	65.09	86	82.69	55	48.25	71	65.14	58	56.86	40	39.60	63	60.00	54	51.92	64	59.26
+ +	63	5.90	5	4.76	9	8.49	4	3.85	7	6.14	3	2.75	9	8.82	6	5.94	13	12.38	1	.96	5	4.63
+ + +	1	.09	1	.95																		
Neck, thickness																						
sm	229	21.48	13	12.38	10	9.43	18	17.31	32	28.07	21	19.27	20	19.61	27	26.73	36	34.29	26	25.00	24	22.22
+	783	73.38	82	78.10	92	86.80	84	80.77	77	67.54	83	76.15	71	69.61	69	68.32	65	61.90	74	71.15	79	73.15
+ +	55	5.15	10	9.52	4	3.77	2	1.92	5	4.39	5	4.59	11	10.78	5	4.95	4	3.81	4	3.85	5	4.63
Total	1068		105		106		104		114		109		102		101		105		104		107	
Shoulder slope																						
Abs.	30	2.81			1	.94			8	7.02	4	3.67			5	4.95	2	1.90			10	9.35
ssm	2	.19							1	.88											1	.93
sm	347	32.55	19	18.10	17	16.04	25	24.04	39	34.21	32	29.36	40	39.22	49	48.51	30	28.57	40	38.46	52	48.60
+	589	55.25	68	64.76	78	73.58	72	69.23	60	52.63	66	60.55	50	49.02	34	33.66	59	56.19	61	58.65	36	33.64
+ +	98	9.19	18	17.14	10	9.43	7	6.73	6	5.26	7	6.42	12	11.76	13	12.87	14	13.33	3	2.88	8	7.48
Chest development																						
ssm	3	.28									1	.92	1	.98							1	.93
sm	118	11.07	19	18.10	7	6.60	9	8.65	11	9.65	12	11.01	15	14.71	14	13.86	10	9.52	8	7.69	12	11.21
+	759	71.20	69	65.71	85	80.19	89	85.58	69	60.53	80	73.39	71	69.61	64	63.37	80	76.19	68	65.38	78	72.90
+ +	184	17.26	17	16.19	14	13.21	5	4.81	34	29.82	16	14.68	14	13.73	23	22.77	15	14.29	28	26.92	16	14.95
+ + +	2	.19					1	.96					1	.98								
Scapulae, vertebral borders																						
Straight	487	45.68	41	39.05	62	58.49	45	43.27	52	45.61	41	37.61	52	50.98	54	53.47	71	67.62	32	30.77	36	33.64
Convex	238	22.33	19	18.10	23	21.70	26	25.00	24	21.05	33	30.28	20	19.61	16	15.84	11	10.48	24	23.08	40	37.38
Concave	341	31.99	45	42.86	21	19.81	33	31.73	38	33.33	35	32.11	30	29.41	31	30.69	23	21.90	48	46.15	31	28.97
Total	1067		105		106		104		114		109		102		101		105		104		108	
Back, lumbar curve																						
Abs.	45	4.22	1	.95					12	10.53	5	4.59	4	3.92	17	16.83	3	2.86	1	.96	2	1.85
ssm	2	.19							1	.88	1	.92										
sm	526	49.30	49	46.67	28	26.42	37	35.58	51	44.74	49	44.95	44	43.14	64	63.37	74	70.48	67	64.42	57	52.78
+	463	43.39	52	49.52	70	66.04	63	60.58	46	40.35	54	49.54	48	47.06	20	19.80	26	24.76	34	32.69	47	43.52
+ +	31	2.91	3	2.86	8	7.55	4	3.85	4	3.51			6	5.88			2	1.90	2	1.92	2	1.85

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	Total Series		MEM		DUK		MEJ		HAS		LUM		PUK		MIR		ZAD		MAT		DIB	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Total	1067		105		106		104		114		109		102		101		105		104		108	
Abdomen																						
sm	216	20.24	16	15.24	19	17.92	25	24.04	25	21.93	24	22.02	27	26.47	18	17.82	14	13.33	23	22.12	23	21.30
+	767	71.88	80	76.19	84	79.25	79	75.96	80	70.18	74	67.89	66	64.71	70	69.31	78	74.29	72	69.23	78	72.22
+ +	84	7.87	9	8.57	3	2.83			9	7.89	11	10.09	9	8.82	13	12.87	13	12.38	9	8.65	7	6.48
Buttocks																						
sm	345	32.33	26	24.76	6	5.66	22	21.15	48	42.11	26	23.85	49	48.04	58	57.43	42	40.00	31	29.81	34	31.48
+	679	63.64	73	69.52	96	90.57	80	76.92	63	55.26	76	69.72	46	45.10	38	37.62	60	57.14	71	68.27	71	65.74
+ +	43	4.03	6	5.71	4	3.77	2	1.92	3	2.63	7	6.42	7	6.86	5	4.95	3	2.85	2	1.92	3	2.78
Calves																						
sm	169	15.84	7	6.67			9	8.65	21	18.42	15	13.76	11	10.78	20	19.80	24	22.86	30	28.85	31	28.70
+	629	58.95	68	64.76	65	61.32	71	68.27	65	57.02	73	66.97	60	58.82	48	47.52	62	59.05	59	56.73	54	50.00
+ +	258	24.18	28	26.67	39	36.79	24	23.08	28	24.56	21	19.27	27	26.47	31	30.69	18	17.14	15	14.42	23	21.30
+ + +	11	1.03	2	1.90	2	1.89							4	3.92	2	1.98	1	.95				
Heel projection																						
Abs.	5	.47											2	1.96	1	.99	1	.95	1	.96		
ssm	5	.47											2	1.96	2	1.98			1	.96		
sm	667	62.51	74	70.48	57	53.77	61	58.65	69	60.53	75	68.81	74	72.55	68	67.33	62	59.05	62	59.62	58	53.70
+	335	31.40	28	26.67	43	40.57	39	37.50	40	35.09	28	25.69	23	22.55	25	24.75	38	36.19	29	27.88	40	37.04
+ +	55	5.15	3	2.86	6	5.66	4	3.85	5	4.39	6	5.50	1	.98	5	4.95	4	3.81	11	10.58	10	9.26
Foot arch																						
Abs.	7	.66	3	2.86											2	1.98	2	1.90				
ssm	3	.28											2	1.96			1	.95				
sm	247	23.15	21	20.00	32	30.19	19	18.27	19	16.67	26	23.85	24	23.53	25	24.75	33	31.43	25	24.04	22	20.37
+	510	47.80	37	35.24	44	41.51	60	57.69	72	63.16	48	44.04	57	55.88	42	41.58	51	48.57	44	42.31	52	48.15
+ +	294	27.55	39	37.14	30	28.30	25	24.04	23	20.18	35	32.11	19	18.63	32	31.68	18	17.14	34	32.69	34	31.48
+ + +	6	.56	5	4.76															1	.96		
II. THE FACE																						
Total	1067		105		106		104		114		109		102		101		105		104		108	
Forehead, height																						
ssm	6	.56							1	.88	1	.92	1	.98	1	.99			1	.96		
sm	190	17.81	10	9.52	14	13.21	13	12.50	25	21.93	24	22.02	17	16.67	30	29.70	11	10.48	24	23.08	19	17.59
+	714	66.92	74	70.48	76	71.70	78	75.00	82	71.93	64	58.72	70	68.63	55	54.46	79	75.24	70	67.31	63	58.33
+ +	157	14.72	21	20.00	16	15.09	13	12.50	6	5.26	20	18.35	14	13.73	15	14.85	15	14.29	9	8.65	26	24.07
Forehead, breadth																						
sm	62	5.81	5	4.76	3	2.83	6	5.77	3	2.63	12	11.01	6	5.88	12	11.88	5	4.76	3	2.88	5	4.63
+	708	66.35	58	55.24	78	73.58	86	82.69	79	69.30	80	73.39	78	76.47	47	46.53	78	74.29	62	59.62	56	51.85
+ +	289	27.09	40	38.10	25	23.58	12	11.54	31	27.19	16	14.68	18	17.65	41	40.59	21	20.00	38	36.54	46	42.59
+ + +	8	.75	2	1.90					1	.88	1	.92			1	.99	1	.95	1	.96	1	.93

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	Total Series		MEM		DUK		MEJ		HAS		LUM		PUK		MIR		ZAD.		MAT		DIB	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Total	1067		105		106		104		114		109		102		101		105		104		108	
Forehead, slope																						
Forward	9	.84	2	1.90			1	.96	2	1.75							1	.95	1	.96	2	1.85
abs.	33	3.09	7	6.67	1	.94	3	2.88	7	6.14	1	.92	3	2.94	2	1.98	2	1.90	3	2.88	4	3.70
ssm	8	.75									1	.92	2	1.96	1	.99			1	.96	3	2.78
sm	304	28.49	38	36.19	34	32.08	28	26.92	36	31.58	24	22.02	30	29.41	18	17.82	21	20.00	36	34.62	37	34.26
+	499	46.77	45	42.86	46	43.40	53	50.96	47	41.23	57	52.29	45	44.12	52	51.49	60	57.14	44	42.31	47	43.52
+ + ...	200	18.75	13	12.38	23	21.70	18	17.31	20	17.54	26	23.85	19	18.63	27	26.73	20	19.05	17	16.35	14	12.96
+ + + ...	14	1.31			2	1.89	1	.96	2	1.75			3	2.94	1	.99	1	.95	2	1.92	1	.93
Browridges, size																						
sm	128	12.00	14	13.33	5	4.72	9	8.65	24	21.05	7	6.42	20	19.61	14	13.86	9	8.57	11	10.58	14	12.96
+	590	55.30	65	61.90	53	50.00	56	53.85	54	47.37	64	58.72	56	54.90	55	54.46	72	68.57	50	48.08	63	58.33
+ + ...	312	29.24	24	22.86	43	40.57	32	30.77	30	26.32	37	33.94	24	23.53	28	27.72	24	22.86	40	38.46	26	24.07
+ + + ...	37	3.47	2	1.90	5	4.72	7	6.73	6	5.26	1	.92	2	1.96	4	3.96			3	2.88	5	4.63
Glabella																						
ssm	5	.47															1	.95	2	1.92	2	1.85
sm	140	13.12	14	13.33	5	4.72	10	9.62	24	21.05	10	9.17	22	21.57	17	16.83	9	8.57	11	10.58	16	14.81
+	590	55.30	68	64.76	54	50.94	56	53.85	57	50.00	63	57.80	53	51.96	55	54.46	72	68.57	50	48.08	61	56.48
+ + ...	299	28.02	21	20.00	42	39.62	31	29.81	28	24.56	35	32.11	26	25.49	26	25.74	23	21.90	38	36.54	25	23.15
+ + + ...	33	3.09	2	1.90	5	4.72	7	6.73	5	4.39	1	.92	1	.98	3	2.97			3	2.88	4	3.70
External eyefolds																						
Abs	677	63.45	56	53.33	59	55.66	80	76.92	63	55.26	82	75.23	64	62.75	60	59.41	51	48.57	81	77.88	75	69.44
sm	108	10.12	19	18.10	10	9.43	9	8.65	12	10.53	7	6.42	17	16.67	8	7.92	11	10.48	4	3.85	10	9.26
+	262	24.56	30	28.57	37	34.91	15	14.42	33	28.95	19	17.43	17	16.67	29	28.71	38	36.19	19	18.27	23	21.30
+ + ...	20	1.87							6	5.26	1	.92	4	3.92	4	3.96	5	4.76				
Eyefolds, epicanthus and median																						
Present	11	1.03	1	.95	1	.94	1	.96	3	2.63			2	1.96					2	1.92	1	.93
Absent	1054	98.98	104	99.05	105	99.06	103	99.04	111	97.37	109	100.00	100	98.04	101	100.00	105	100.00	102	98.08	107	99.07
Palpebral opening																						
ssm	14	1.31							5	4.39			2	1.96	5	4.95					2	1.85
sm	583	54.64	51	48.57	83	78.30	40	38.46	82	71.93	54	49.54	58	56.86	56	55.45	54	51.43	35	33.65	64	59.26
+	467	43.77	54	51.43	23	21.70	64	61.54	27	23.68	54	49.54	42	41.18	40	39.60	49	46.67	69	66.35	42	38.89
+ + ...	3	.28									1	.92					2	1.90				
Obliquity																						
Abs.	854	80.04	81	77.14	73	68.87	82	78.85	105	92.11	94	86.24	82	80.39	72	71.29	81	77.14	90	86.54	87	80.56
ssm	6	.56							2	1.75					3	2.97					1	.93
sm	189	17.71	21	20.00	32	30.19	19	18.27	5	4.39	15	13.76	16	15.69	24	23.76	23	21.90	14	13.46	18	16.67
+	18	1.69	3	2.86	1	.94	3	2.88	2	1.75			4	3.92	2	1.98	1	.95			2	1.85
Malars, forwards																						
ssm	2	.19									1	.92	1	.98								
sm	483	45.27	48	45.71	37	34.91	34	32.69	54	47.37	43	39.45	51	50.00	49	48.51	45	42.86	56	53.85	62	57.41
+	534	50.05	55	52.38	60	56.60	64	61.54	56	49.12	55	50.46	45	44.12	47	46.53	59	56.19	44	42.31	44	40.74
+ + ...	48	4.50	2	1.90	9	8.49	6	5.77	4	3.51	10	9.17	5	4.90	5	4.95	1	.95	4	3.85	2	1.85

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8: Coon E-5 (1929-30; 46-48) 1950 EGI Albania EGI
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	Total Series		MEM		DUK		MEJ		HAS		LUM		PUK		MIR		ZAD		MAT		DIB	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Total	1067		105		106		104		114		109		102		101		105		104		108	
Malars, sideways																						
ssm	6	.56							1	.88	2	1.83	1	.98	2	1.98						
sm	294	27.56	24	22.86	22	20.75	23	22.12	30	26.32	25	22.94	36	35.29	35	34.65	39	37.14	33	31.73	26	24.07
+	545	51.08	61	58.10	59	55.66	62	59.62	56	49.12	57	52.29	45	44.12	41	40.59	54	51.43	46	44.23	57	52.78
+ +	221	20.71	20	19.05	25	23.58	19	18.27	27	23.68	25	22.94	20	19.61	22	21.78	12	11.43	25	24.04	25	23.15
+ + +	1	.09									1	.92										
Cheeks																						
ssm	4	.37							1	.88	1	.92	1	.98	1	.99						
sm	455	42.65	37	35.24	43	40.57	29	27.88	64	56.14	44	40.37	53	51.96	50	49.50	41	39.05	44	42.31	47	43.52
+	533	49.95	58	55.24	54	50.94	70	67.31	41	35.96	57	52.29	40	39.22	44	43.56	58	55.24	53	50.96	52	48.15
+ +	75	7.03	10	9.52	9	8.49	5	4.81	8	7.02	7	6.42	8	7.84	6	5.94	6	5.71	7	6.73	9	8.33
Wrinkling																						
Abs.	236	22.12	19	18.10	17	16.04	26	25.00	22	19.30	31	28.44	33	32.35	26	25.74	16	15.24	16	15.38	26	24.07
ssm	4	.37							3	2.63									1	.96		
sm	366	34.30	41	39.05	55	51.89	36	34.62	27	23.68	39	35.78	25	24.51	31	30.69	32	30.48	43	41.35	33	30.56
+	385	36.08	40	38.10	28	26.42	39	37.50	52	45.61	30	27.52	35	34.31	31	30.69	49	46.67	38	36.54	43	39.81
+ +	73	6.84	5	4.76	6	5.66	3	2.88	10	8.77	9	8.26	8	7.84	11	10.89	8	7.62	6	5.77	6	5.56
+ + +	3	.28							1	.88	2	1.83										
Gonial angles																						
ssm	7	.66							1	.88	1	.92	1	.98	2	1.98			2	1.92		
sm	270	25.31	25	23.81	29	27.36	25	24.04	22	19.30	17	15.60	32	31.37	30	29.70	33	31.43	27	25.96	27	25.00
+	591	55.39	57	54.29	61	57.55	65	62.50	74	64.91	69	63.30	46	45.10	51	50.50	49	46.67	53	50.96	60	55.56
+ +	190	17.81	22	20.95	16	15.09	12	11.54	16	14.04	22	20.18	22	21.57	16	15.84	23	21.90	20	19.23	21	19.44
+ + +	9	.84	1	.95			2	1.92	1	.88			1	.98	2	1.98			2	1.92		
Ear lobes, type																						
Attached	345	32.33	38	36.19	38	35.85	45	43.27	27	23.68	38	34.86	36	35.29	28	27.72	29	27.62	34	32.69	30	27.78
Free	722	67.67	67	63.81	68	64.15	59	56.73	87	76.32	71	65.14	66	64.71	73	72.28	76	72.38	70	67.31	78	72.22
Ear lobes, development																						
ssm	8	.75									1	.92	2	1.96	1	.99			2	1.92	2	1.85
sm	427	40.02	53	50.48	45	42.45	41	39.42	36	31.58	42	38.53	34	33.33	46	45.54	35	33.33	40	38.46	50	46.30
+	570	53.42	51	48.57	57	53.77	61	58.65	64	56.14	57	52.29	59	57.84	44	43.56	65	61.90	59	56.73	49	45.37
+ +	61	5.72	1	.95	4	3.77	2	1.92	13	11.40	9	8.26	7	6.86	10	9.90	5	4.76			7	6.48
+ + +	1	.09							1	.88												
Helix																						
Abs.	6	.56	1	.95					1	.88			2	1.96	1	.99					1	.93
ssm	6	.56	1	.95	1	.94	1	.96	1	.88					2	1.98						
sm	314	29.43	32	30.48	32	30.19	44	42.31	31	27.19	29	26.61	26	25.49	24	23.76	17	16.19	41	39.42	35	32.41
+	711	66.64	70	66.67	70	66.04	58	55.77	78	68.42	75	68.81	70	68.63	70	69.31	88	83.81	60	57.69	67	62.04
+ +	30	2.81	1	.95	3	2.83	1	.96	3	2.63	5	4.59	4	3.92	4	3.96			3	2.88	5	4.63
Antihelix																						
Abs.	13	1.22	1	.95					1	.88			1	.98			2	1.90	2	1.92	6	5.56
ssm	2	.19																			2	1.85
sm	123	11.53	6	5.71	9	8.49	6	5.77	15	13.16	14	12.84	12	11.76	7	6.93	14	13.33	21	20.19	17	15.74
+	849	79.57	86	81.90	95	89.62	94	90.38	88	77.19	88	80.73	85	83.33	75	74.26	84	80.00	75	72.12	72	66.67
+ +	77	7.22	11	10.48	2	1.89	4	3.85	10	8.77	6	5.50	4	3.92	18	17.82	5	4.76	6	5.77	11	10.19
+ + +	3	.28	1	.95							1	.92			1	.99						

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8: Coon   E-5   (1929-30; 46-48) 1950   EGI Albania EGI
Highland Ghegs

54 j

	Total Series		MEM		DUK		MEJ		HAS		LUM		PUK		MIR		ZAD		MAT		DIB	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Total	1067		105		106		104		114		109		102		101		105		104		108	
Darwin's Point, left																						
Abs.	646	60.54	70	66.67	72	67.92	60	57.69	64	56.14	71	65.14	57	55.88	49	48.51	63	60.00	69	66.35	67	62.04
sm	172	16.12	19	18.10	21	19.81	23	22.12	17	14.91	15	13.76	22	21.57	18	17.82	15	14.29	7	6.73	13	12.04
+	220	20.62	14	13.33	13	12.26	20	19.23	23	20.18	21	19.27	21	20.59	30	29.70	26	24.76	26	25.00	23	21.30
+ +	27	2.53	2	1.90			1	.96	9	7.89	2	1.83	2	1.96	3	2.97	1	.95	2	1.92		
+ + +	2	.19							1	.88					1	.99					1	.93
Darwin's Point, right																						
Abs.	628	58.86	68	64.76	70	66.04	57	54.81	59	51.75	65	59.63	59	57.84	59	58.42	62	59.05	63	60.58	61	56.48
sm	164	15.37	16	15.24	23	21.70	20	19.23	17	14.91	15	13.76	22	21.57	11	10.89	15	14.29	12	11.54	10	9.26
+	246	23.06	19	18.10	13	12.26	26	25.00	29	25.44	27	24.77	17	16.67	27	26.73	26	24.76	28	26.92	33	30.56
+ +	27	2.53	2	1.90			1	.96	8	7.02	2	1.83	4	3.92	4	3.96	2	1.90	1	.96	3	2.78
+ + +	2	.19							1	.88											1	.93
Lips, integumental thickness																						
sm	23	2.16	2	1.90			3	2.88	4	3.51	1	.92	1	.98	5	4.95	4	3.81	3	2.88		
+	910	85.29	92	87.62	104	98.11	94	90.38	85	74.56	98	89.91	95	93.14	70	69.31	81	77.14	87	83.65	96	88.89
+ +	133	12.47	11	10.48	2	1.89	7	6.73	25	21.93	10	9.17	6	5.88	26	25.74	20	19.05	13	12.50	12	11.11
+ + +	1	.09																	1	.96		
Lips, membranous thickness																						
Abs.	93	8.72	10	9.52	4	3.77	2	1.92	20	17.54	7	6.42	10	9.80	13	12.87	12	11.43	5	4.81	10	9.26
ssm	19	1.78							7	6.14	3	2.75			1	.99			4	3.85	4	3.70
sm	454	42.55	34	32.38	47	44.34	43	41.35	41	35.96	38	34.86	49	48.04	51	50.50	42	40.00	58	55.77	46	42.59
+	469	43.96	60	57.14	51	48.11	57	54.81	41	35.96	59	54.13	41	40.20	29	28.71	50	47.62	34	32.69	44	40.74
+ +	31	2.91	1	.95	4	3.77	2	1.92	5	4.39	2	1.83	2	1.96	7	6.93	1	.95	3	2.88	3	2.78
+ + +	1	.09																			1	.93
Lips, eversion																						
Abs.	112	10.50	10	9.52	5	4.72	2	1.92	20	17.54	9	8.26	10	9.80	16	15.84	15	14.29	14	13.46	11	10.19
ssm	14	1.31							7	6.14	1	.92			1	.99			2	1.92	3	2.78
sm	453	42.46	33	31.43	44	41.51	43	41.35	44	38.60	39	35.78	54	52.94	49	48.51	41	39.05	53	50.96	47	43.52
+	465	43.58	61	58.10	54	50.94	56	53.85	40	35.09	58	53.21	38	37.25	30	29.70	49	46.67	33	31.73	43	39.81
+ +	22	2.06	1	.95	3	2.83	3	2.88	3	2.63	2	1.83			5	4.95			2	1.92	1	2.78
+ + +	1	.09																				
Total	1066		105		106		104		114		109		102		101		104		104		108	
Chin, prominence																						
sm	241	22.61	24	22.86	5	4.72	22	21.15	27	23.68	20	18.35	32	31.37	19	18.81	27	25.96	29	27.88	36	33.33
+	745	69.89	76	72.38	90	84.91	79	75.96	75	65.79	80	73.39	60	58.82	70	69.31	73	70.19	67	64.42	67	62.04
+ +	79	7.41	4	3.81	11	10.38	3	2.88	12	10.53	9	8.26	10	9.80	12	11.88	4	3.85	8	7.69	5	4.63
+ + +	1	.09	1	.95																		
Chin, type																						
Median	813	76.27	86	81.90	41	38.68	70	67.31	92	80.70	83	76.15	91	89.22	86	85.15	87	83.65	87	83.65	82	75.93
Bilateral	253	23.73	19	18.10	65	61.32	34	32.69	22	19.30	26	23.85	11	10.78	15	14.85	17	16.35	17	16.35	26	24.07

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8: Coon E-5 (1929-30; 46-48) 1950 EGI Albania EGI
Highland Ghegs

	Total Series		MEM		DUK		MEJ		RAS		LUM	
	#	%	#	%	#	%	#	%	#	%	#	%
Total	1067		105		106		104		114		109	
Nasion depression												
Abs.	2	.19										
ssm	68	6.37	9	8.57	3	2.83	4	3.85	10	8.77	7	6.42
sm	320	29.99	26	24.76	30	28.30	29	27.88	38	33.33	34	31.19
+	552	51.74	59	56.19	50	47.17	57	54.81	58	50.88	64	58.72
+ +	123	11.53	11	10.48	23	21.70	14	13.46	8	7.02	4	3.67
+ + +	2	.19										
Nasal root, height												
sm	114	10.68	10	9.52	8	7.55	11	10.58	3	2.63	6	5.50
+	726	68.05	72	68.57	75	70.75	74	71.15	86	75.44	78	71.56
+ +	208	19.50	21	20.00	21	19.81	18	17.31	23	20.18	23	21.10
+ + +	18	1.69	2	1.90	2	1.89	1	.96	2	1.75	2	1.83
Nasal root, breadth												
ssm	26	2.44	2	1.90					1	.88	6	5.50
sm	504	47.24	34	32.38	50	47.17	42	40.38	55	48.25	53	48.62
+	494	46.30	59	56.19	52	49.06	58	55.77	56	49.12	46	42.20
+ +	43	4.03	10	9.52	4	3.77	4	3.85	2	1.75	4	3.67
Nasal bridge, height												
ssm	1	.09			1	.94						
sm	46	4.31	4	3.81	5	4.72	6	5.77	2	1.75	4	3.67
+	552	51.74	60	57.14	56	52.83	62	59.62	57	50.00	52	47.71
+ +	370	34.68	35	33.33	37	34.91	31	29.81	40	35.09	44	40.37
+ + +	98	9.18	6	5.71	7	6.60	5	4.81	15	13.16	9	8.26
Nasal bridge, breadth												
ssm	31	2.91	3	2.86					2	1.75	5	4.59
sm	462	43.30	32	30.48	49	46.23	41	39.42	47	41.23	46	42.20
+	519	48.64	58	55.24	51	48.11	57	54.81	62	54.39	56	51.38
+ +	54	5.06	12	11.43	5	4.72	6	5.77	3	2.63	2	1.83
+ + +	1	.09			1	.94						
Nasal Profile												
cnc	69	6.47	7	6.67	11	10.38	10	9.62	3	2.63	5	4.59
str	416	38.99	40	38.10	47	44.34	47	45.19	45	39.47	44	40.37
cnv	571	53.52	55	52.38	48	45.28	47	45.19	66	57.89	60	55.05
c-c	11	1.03	3	2.86								
Nasal tip, thickness												
ssm	31	2.91			2	1.89	2	1.92	4	3.51	4	3.67
sm	372	34.87	24	22.86	38	35.85	32	30.77	46	40.35	33	30.28
+	548	51.36	57	54.29	52	49.06	62	59.62	57	50.00	64	58.72
+ +	115	10.78	24	22.86	14	13.21	8	7.69	7	6.14	8	7.34
+ + +	1	.09										
Nasal tip, elevation and depression												
Elevated	601	56.33	40	38.10	53	50.00	60	57.69	86	75.44	75	68.81
Depressed	466	43.67	65	61.90	53	50.00	44	42.31	28	24.56	34	31.19

	PUR		MIR		ZAD		MAT		DIB	
	#	%	#	%	#	%	#	%	#	%
Total	102		101		105		104		108	
Nasion depression										
Abs.					1	.95			1	.93
ssm	5	4.90	8	7.92	3	2.86	11	10.58	8	7.41
sm	20	19.61	29	28.71	35	33.33	36	34.62	42	38.89
+	66	64.71	49	48.51	54	51.43	45	43.27	46	42.59
+ +	11	10.78	14	13.86	12	11.43	11	10.58	11	10.19
+ + +			1	.99			1	.96		
Nasal root, height										
sm	14	13.73	22	21.78	18	17.14	13	12.50	8	7.41
+	81	79.41	60	59.41	70	66.67	63	60.58	60	55.56
+ +	6	5.88	18	17.82	15	14.29	26	25.00	37	34.26
+ + +	1	.98	1	.99	2	1.90	2	1.92	3	2.78
Nasal root, breadth										
ssm	4	3.92	3	2.97	2	1.90	1	.96	7	6.48
sm	50	49.02	62	61.39	43	40.95	47	45.19	66	61.11
+	41	40.20	36	35.64	55	52.38	55	52.88	30	27.78
+ +	7	6.86			5	4.76	1	.96	5	4.63
Nasal bridge, height										
ssm										
sm	5	4.90	4	3.96	8	7.62	5	4.81	3	2.78
+	67	65.69	52	51.49	53	50.48	47	45.19	39	36.11
+ +	26	25.49	34	33.66	36	34.29	38	36.54	47	43.52
+ + +	4	3.92	11	10.89	8	7.62	14	13.46	19	17.59
Nasal bridge, breadth										
ssm	4	3.92	3	2.97	3	2.86	1	.96	10	9.26
sm	48	47.06	52	51.49	34	32.38	55	52.88	56	51.85
+	42	41.18	45	44.55	63	60.00	47	45.19	32	29.63
+ +	8	7.84	1	.99	5	4.76	1	.96	10	9.26
+ + +										
Nasal Profile										
cnc	11	10.78	3	2.97	5	4.76	3	2.88	11	10.19
str	42	41.18	40	39.60	36	34.29	39	37.50	33	30.56
cnv	48	47.06	58	57.43	64	60.95	58	55.77	62	57.41
c-c	1	.98					4	3.85	2	1.85
Nasal tip, thickness										
ssm	3	2.94	3	2.97	2	1.90	4	3.85	7	6.48
sm	43	42.16	40	39.60	29	27.62	39	37.50	46	42.59
+	46	45.10	53	52.48	62	59.05	46	44.23	42	38.89
+ +	10	9.80	5	4.95	12	11.43	15	14.42	12	11.11
+ + +									1	.93
Nasal tip, elevation and depression										
Elevated	64	62.75	52	51.49	47	44.76	60	42.31	60	55.56
Depressed	38	37.25	49	48.51	58	55.24	44	57.69	48	44.44

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8: Coon E-5 (1929-30; 46-48) 1959 EGI Albania EGI
Highland Ghegs

- 54, L

	Total Series		MEM		DUK		MEJ		HAS		LUM		PUK		MIR		ZAD		MAT		DIB	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Total	1067		105		106		104		114		109		102		101		105		104		108	
Nasal wings																						
Compressed	383	35.90	25	23.81	33	31.13	23	22.12	54	47.37	30	27.52	46	45.10	41	40.59	33	31.43	43	41.35	53	49.07
Medium	623	58.39	71	67.62	62	58.49	76	73.08	55	48.25	74	67.89	49	48.04	60	59.41	62	59.05	58	55.77	49	45.37
Flaring	61	5.72	9	8.57	11	10.38	5	4.81	5	4.39	5	4.59	7	6.86			10	9.52	3	2.88	6	5.56
Total	1066		105		106		104		114		109		102		101		105		103		108	
Nasal septum, shape																						
straight	728	68.29	74	70.48	77	72.64	67	64.42	78	68.42	72	66.06	71	69.61	74	73.27	90	85.71	61	59.22	60	55.56
convex	338	31.71	31	29.52	29	27.36	37	35.58	36	31.58	37	33.94	31	30.39	27	26.73	15	14.29	42	40.78	48	44.44
Total	1065		105		106		104		114		109		102		100		105		103		108	
Nasal septum, inclination																						
Up	596	55.96	43	40.95	57	53.77	64	61.54	82	71.93	72	66.06	59	57.84	52	52:00	49	46.67	57	55.34	58	53.70
Down	469	44.04	62	59.05	49	46.23	40	38.46	32	28.07	37	33.94	43	42.16	48	48.00	56	53.33	46	44.66	50	46.30
III. THE HEAD																						
Total	1067		105		106		104		114		109		102		101		105		104		108	
Temporal fulness																						
ssm	2	.19							1	.88	1	.92										
sm	131	12.28	3	2.86	5	4.72	12	11.54	27	23.68	15	13.76	19	18.63	22	21.78	10	9.52	7	6.73	9	8.33
+	789	73.95	85	80.95	91	85.85	87	83.65	67	58.77	81	74.31	71	69.61	57	56.44	82	78.10	79	75.96	83	76.85
++	142	13.31	16	15.24	10	9.43	5	4.81	19	16.67	12	11.01	12	11.76	22	21.78	13	12.38	16	15.38	16	14.81
+++	3	.28	1	.95															2	1.92		
Occipital protrusion																						
Abs	5	.47			2	1.89													3	2.88		
ssm	21	1.97	1	.95					5	4.39	4	3.67	2	1.96	3	2.97	2	1.90	2	1.92	2	1.85
sm	341	31.96	43	40.95	26	24.53	25	24.04	42	36.84	14	12.84	19	18.63	32	31.68	47	44.76	51	49.04	41	37.96
+	578	54.17	58	55.24	68	64.15	66	63.46	55	48.25	65	59.63	70	68.63	47	46.53	50	47.62	38	36.54	56	51.85
++	116	10.87	3	2.86	9	8.49	13	12.50	12	10.53	24	22.02	11	10.78	17	16.83	5	4.76	10	9.62	9	8.33
+++	6	.56			1	.94					2	1.83			2	1.98	1	.95				
Occipital flattening																						
Abs.	737	69.07	52	49.52	84	79.25	83	79.81	83	72.81	85	77.98	82	80.39	70	69.31	55	52.38	60	57.69	75	69.44
sm	37	3.47	4	3.81	4	3.77			3	2.63	2	1.83	2	1.96	2	1.98	10	9.52	7	6.73	3	2.78
+	213	19.96	35	33.33	14	13.21	17	16.35	17	14.91	17	15.60	9	8.82	20	19.80	30	28.57	30	28.85	23	21.30
++	70	6.56	12	11.43	4	3.77	4	3.85	10	8.77	5	4.59	6	5.88	8	7.92	9	8.57	6	5.76	6	5.56
+++	10	.94	2	1.90					1	.88			3	2.94	1	.99	1	.95	1	.96	1	.93
Lambdoid flattening																						
Abs.	597	55.95	73	69.52	39	36.79	54	51.92	48	42.11	50	45.87	74	72.55	57	56.44	83	79.05	53	50.96	58	53.70
sm	110	10.31	8	7.62	11	10.38	9	8.65	16	14.04	10	9.17	8	7.84	10	9.90	8	7.62	12	11.54	18	16.67
+	327	30.65	21	20.00	54	50.94	40	38.46	39	34.21	47	43.12	18	17.65	29	28.71	13	12.38	35	33.65	30	27.78
++	31	2.91	3	2.86	2	1.89	1	.96	11	9.65	2	1.83	2	1.96	4	3.96	1	.95	4	3.85	1	.93
+++	2	.19													1	.99					1	.93

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8: Coon E-5 (1929-30; 46-48) 1950 EGI Albania EGI
Highland Ghegs

	Total Series		MEM		DUK		MEJ		HAS		LUM		PUK		MIR		ZAD		MAT		DIB	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Total	1067		105		106		104		114		109		102		101		105		104		108	
Bathrocephaly																						
Abs.	758	71.04	93	88.57	56	52.83	58	55.77	80	70.18	63	57.80	84	82.36	71	70.30	94	89.52	78	75.00	75	69.44
sm	5	.47							3	2.63	1	.92	1	.98								
+	291	27.27	12	11.43	48	45.28	44	42.31	28	24.56	44	40.37	16	15.69	29	28.71	11	10.48	26	25.00	31	28.70
+ +	7	.66			2	1.89	1	.96	1	.88	1	.92	1	.98							1	.93
+ + +	6	.56					1	.96	2	1.75					1	.99					1	.93
Cranial asymmetry, left																						
Abs.	955	89.50	89	84.76	102	96.23	98	94.23	98	85.96	95	87.16	94	92.16	89	88.12	95	90.48	93	89.42	94	87.04
sm	19	1.78	3	2.86	2	1.89	2	1.92	5	4.39	1	.92	1	.98	2	1.98	2	1.90	1	.96		
+	74	6.94	12	11.43	2	1.89	3	2.88	7	6.14	12	11.01	6	5.88	7	6.93	7	6.67	6	5.77	11	10.19
+ +	18	1.69	1	.95			1	.96	3	2.63	1	.92	1	.98	3	2.97	1	.95	4	3.85	3	2.78
+ + +	1	.09							1	.88												
Cranial asymmetry, right																						
Abs.	792	74.23	67	63.81	84	79.25	77	74.04	91	79.82	85	77.98	87	85.29	79	78.22	64	60.95	68	65.38	82	75.93
sm	72	6.75	15	14.29	9	8.49	6	5.77	3	2.63	5	4.59	6	5.88	6	5.94	13	12.38	4	3.85	5	4.63
+	182	17.06	23	21.90	12	11.32	21	20.19	14	12.28	18	16.51	9	8.82	15	14.85	25	23.81	28	26.92	16	14.81
+ +	20	1.87			1	.94			5	4.39	1	.92			1	.99	3	2.85	4	3.85	5	4.63
+ + +	1	.09							1	.88												
Facial asymmetry, left																						
Abs.	1029	96.44	102	97.14	106	100.00	103	99.04	108	94.74	102	93.58	101	99.02	100	99.01	96	91.43	101	97.12	101	93.52
sm	1	.09															1	.95				
+	29	2.72	3	2.86			1	.96	5	4.39	5	4.59	1	.98	1	.99	7	6.67	2	1.92	4	3.70
+ +	8	.75							1	.88	2	1.83					1	.95	1	.96	3	2.78
Facial asymmetry, right																						
Abs.	1042	97.66	102	97.14	105	99.06	104	100.00	109	95.61	109	100.00	97	95.10	99	98.02	102	97.14	101	97.12	105	97.22
+	18	1.69	2	1.90	1	.94			2	1.75			4	3.92	2	1.98	2	1.90	3	2.88	2	1.85
+ +	7	.66	1	.95					3	2.63			1	.98			1	.95			1	.93
Handedness																						
Left	74	6.94	11	10.48	3	2.83	5	4.81	6	5.26	8	7.34	7	6.86	8	7.92	6	5.71	12	11.54	7	6.48
Right.	986	92.41	93	88.57	103	97.17	99	95.19	107	93.86	100	91.74	94	92.16	91	90.10	99	94.29	92	88.46	100	92.59
Ambi	7	.66	1	.95					1	.88	1	.92	1	.98	2	1.98					1	.93

IV. THE PILOUS SYSTEM

	Total Series		MEM		DUK		MEJ		HAS		LUM		PUK		MIR		ZAD		MAT		DIB	
Total	1067		105		106		104		114		109		102		101		105		104		108	
Eyebrows, thickness																						
ssm	1	.09																	1	.96		
sm	52	4.87	5	4.76	9	8.49	6	5.77	4	3.51	5	4.59	1	.98	4	3.96	1	.95	6	5.77	10	9.26
+	895	83.88	93	88.57	86	81.13	90	86.54	91	79.82	88	80.73	93	91.18	86	85.15	96	91.43	85	81.73	81	75.00
+ +	116	10.87	7	6.67	11	10.38	8	7.69	17	14.91	16	14.68	8	7.84	11	10.89	8	7.62	12	11.54	16	14.81
+ + +	3	.28							2	1.75											1	.93

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8: Coon E-5 (1929-30; 46-48) 1950 EGl Albania EGl
Highland Gheps

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	Total Series		MEM		DUK		MEJ		AS		LUM		PUK		MIR		ZAD		MAT		DIB	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Total	1067		105		106		104		114		109		102		101		105		104		108	
Eyebrows, concurrency																						
Abs	311	29.15	31	29.52	26	24.53	33	31.73	42	36.84	39	35.78	20	19.61	36	35.64	28	26.67	30	28.85	25	23.15
ssm	4	.37							2	1.75	1	.92									1	.93
sm	398	37.30	43	40.95	34	32.08	31	29.81	40	35.09	38	34.86	41	40.20	37	36.63	36	34.29	41	39.42	54	50.00
+	299	28.02	28	26.67	40	37.74	37	35.58	25	21.93	23	21.10	39	38.24	21	20.79	35	33.33	24	23.08	22	20.37
+ +	53	4.97	3	2.86	6	5.66	3	2.88	4	3.51	8	7.34	1	.98	7	6.93	6	5.71	9	8.65	6	5.56
+ + +	2	.19							1	.88			1	.98								
Eyebrows, lateral extension																						
Abs	36	3.37	4	3.81	1	.94	2	1.92	5	4.39	3	2.75			2	1.98	3	2.86	9	8.65	7	6.48
ssm	2	.19													1	.99					1	.93
sm	320	29.99	31	29.52	8	7.55	18	17.31	61	53.51	39	35.78	19	18.63	38	37.62	20	19.05	41	39.42	44	40.74
+	648	60.74	68	64.76	91	85.85	74	71.15	45	39.47	55	50.46	76	74.51	55	54.46	74	70.48	51	49.04	51	47.22
+ +	61	5.72	2	1.90	6	5.66	10	9.62	3	2.63	12	11.01	7	6.86	5	4.95	8	7.62	3	2.88	5	4.63
Hair form																						
Straight	3	.28													2	1.98			1	.96		
Low waves	735	68.88	62	59.05	75	70.75	92	88.46	55	48.25	80	73.39	68	66.67	77	76.24	81	77.14	75	72.12	66	61.11
Deep waves	301	28.21	36	34.29	26	24.53	10	9.62	59	51.75	21	19.27	31	30.39	22	21.78	24	22.86	27	25.96	40	37.04
Curly	28	2.62	7	6.66	5	4.72	2	1.92			8	7.34	3	2.94					1	.96	2	1.85
Hair texture																						
Coarse	4	.37															1	.95	3	2.88		
Medium	854	80.04	78	74.29	84	79.25	93	89.42	83	72.81	100	91.74	78	76.47	76	75.25	75	71.43	91	87.50	88	81.48
Fine	209	19.59	27	25.71	22	20.75	11	10.58	31	27.19	9	8.26	24	23.53	25	24.75	29	27.62	10	9.62	20	18.52
Total	1046		105		104		98		111		106		98		101		104		102		108	
Baldness																						
Abs	805	76.96	87	82.86	83	79.81	78	79.59	60	54.05	80	75.47	80	81.63	79	78.22	85	81.73	89	87.25	78	72.22
ssm	22	2.10	1	.95					12	10.81	2	1.89	1	1.02	3	2.97					3	2.78
sm	128	12.24	11	10.48	13	12.50	10	10.20	25	22.52	13	12.26	12	12.24	10	9.90	9	8.65	4	3.92	20	18.52
+	72	6.88	4	3.81	8	7.70	8	8.16	11	9.91	8	7.55	3	3.06	8	7.92	8	7.69	6	5.88	6	5.56
+ +	16	1.53					2	2.04	2	1.80	3	2.83	2	2.04	1	.99	2	1.92	3	2.94	1	.93
+ + +	3	.29	2	1.90					1	.90												
Hair quantity, head																						
Abs	1	.10																			1	.93
ssm	7	.67	1	.95			1	1.12	1	.90			1	1.02					1	.98	2	1.85
sm	136	13.00	10	9.52	17	16.35	8	8.16	25	22.52	10	9.43	8	8.16	17	16.83	16	15.38	11	10.78	13	12.04
+	844	80.69	94	89.52	81	77.88	85	86.73	78	70.27	87	82.08	88	89.80	76	75.25	87	83.65	89	87.25	72	66.67
+ +	58	5.54			6	5.77	4	4.08	7	6.31	9	8.49	1	1.02	8	7.92	1	.96	1	.98	20	18.52
Total	1067		105		106		104		114		109		102		101		105		104		108	
Hair quantity, mustache																						
Abs	1	.09									1	.92										
ssm	15	1.41					3	2.88			2	1.83	3	2.94	2	1.98	2	1.90			2	1.85
sm	81	7.59	1	.95	8	7.55	6	5.77	9	7.89	12	11.01	11	10.78	6	5.94	7	6.67	14	13.46	7	6.48
+	729	68.32	80	76.19	80	75.47	83	79.81	77	67.54	65	59.63	70	68.63	68	67.33	70	66.67	71	68.27	62	57.41
+ +	240	22.49	24	22.86	18	16.98	12	11.54	27	23.68	29	26.61	18	17.65	25	24.75	26	24.76	19	18.27	37	34.26
+ + +	1	.09							1	.88												

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8: Coon E-5 (1929-30; 46-48) 1950 EGI Albania EGI
Highland Ghegs

[p. 54 (o)]

	Total Series		MEM		DUK		MEJ		HAS		LUM		PUK		MIR		ZAD		MAT		DIB	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Total	1067		105		106		104		114		109		102		101		105		104		108	
Hair quantity, cheeks																						
Abs.	50	4.69	2	1.90	2	1.89	6	5.77	5	4.39	6	5.50	6	5.88	4	3.96	2	1.90	5	4.81	11	10.19
ssm	52	4.87			2	1.89	4	3.85	7	6.14	5	4.59	10	9.80	11	10.89	7	6.67	4	3.85	2	1.85
sm	189	17.71	13	12.38	18	16.98	15	14.42	23	20.18	20	18.35	18	17.65	19	18.81	20	19.05	29	27.88	14	12.96
+	542	50.80	65	61.90	66	62.26	67	64.42	52	45.61	49	44.95	50	49.02	44	43.56	51	48.57	47	45.19	48	44.44
+ +	233	21.84	25	23.81	18	16.98	12	11.54	26	22.81	29	26.61	18	17.65	23	22.77	25	23.81	19	18.27	33	30.56
+ + +	1	.09							1	.88												
Hair quantity, jaw																						
Abs.	21	1.97			2	1.89	4	3.85			5	4.59	3	2.94	2	1.98	1	.95			3	2.78
ssm	28	2.62	2	1.90			2	1.92	6	5.26	3	2.75	3	2.94	5	4.95	4	3.81	1	.96	2	1.85
sm	183	17.15	5	4.76	15	14.15	15	14.42	20	17.54	18	16.51	23	22.55	20	19.80	15	14.29	34	32.69	18	16.67
+	595	55.76	73	69.52	71	66.98	71	68.27	60	52.63	54	49.54	55	53.92	50	49.50	59	56.19	50	48.08	49	45.37
+ +	239	22.40	25	23.81	18	16.98	12	11.54	27	23.68	29	26.61	18	17.65	24	23.76	26	24.76	19	18.27	36	33.33
+ + +	1	.09							1	.88												
Hair quantity, arms and legs																						
Abs.	6	.56									1	.92	1.	.98	3	2.97			1	.96		
ssm	10	.94					1	.96			2	1.83			3	2.97	1	.95	2	1.92	1	.93
sm	280	26.24	12	11.43	18	16.98	24	23.08	26	22.81	31	28.44	36	35.29	33	32.67	24	22.86	41	39.42	34	31.48
+	638	59.79	87	82.86	76	71.70	69	66.35	63	55.26	53	48.62	54	52.94	52	51.49	70	66.67	55	52.88	52	48.15
+ +	132	12.37	6	5.71	12	11.32	10	9.62	25	21.93	22	20.18	11	10.78	10	9.90	10	9.52	5	4.81	20	18.52
+ + +	1	.09																			1	.93
Hair quantity, chest																						
Abs.	249	23.34	22	20.95	7	6.60	29	27.88	16	14.04	37	33.94	32	31.37	18	17.82	26	24.76	37	35.58	24	22.22
ssm	14	1.30							7	6.14			1	.98	3	2.97	1	.95			2	1.85
sm	245	22.96	14	13.33	28	26.42	20	19.23	26	22.81	25	22.94	27	26.47	23	22.77	28	26.67	29	27.88	25	23.15
+	378	35.43	48	45.71	55	51.89	46	44.23	41	35.96	26	23.85	33	32.35	39	38.61	31	29.52	25	24.04	30	27.78
+ +	170	15.93	21	20.00	15	14.15	9	8.65	19	16.67	21	19.27	8	7.84	16	15.84	19	18.10	12	11.54	26	24.07
+ + +	11	1.02			1	.94			5	4.39			1	.98	2	1.98			1	.96	1	.93
Whiteness, head																						
Present	10	.93							2	1.75	5	4.59							1	.96	2	1.85
Absent	1057	99.06	105	100.00	106	100.00	104	100.00	112	98.25	104	95.41	102	100.00	101	100.00	105	100.00	103	99.04	106	98.15
Whiteness, mustache																						
Present	7	.65							2	1.75	5	4.59										
Absent	1060	99.34	105	100.00	106	100.00	104	100.00	112	98.25	104	95.41	102	100.00	101	100.00	105	100.00	104	100.00	108	100.00
Grayness, head																						
Abs.	690	64.67	73	69.52	80	75.47	79	75.96	51	44.74	74	67.89	69	67.65	57	56.44	65	61.90	76	73.08	62	57.41
ssm	25	2.33	1	.95					6	5.26			4	3.92	8	7.92	1	.95	3	2.88	2	1.85
sm	117	10.97	12	11.43	13	12.26	12	11.54	16	14.04	13	11.93	7	6.86	10	9.90	11	10.48	7	6.73	15	13.89
+	140	13.12	11	10.48	7	6.60	8	7.69	18	15.79	14	12.84	17	16.67	16	15.84	17	16.19	11	10.58	17	15.74
+ +	78	7.31	6	5.71	5	4.72	5	4.81	19	16.67	6	5.50	4	3.92	8	7.92	8	7.62	6	5.77	11	10.19
+ + +	17	1.58	2	1.90	1	.94			4	3.51	2	1.83	1	.98	2	1.98	3	2.86	1	.96	1	.93
Grayness, mustache and beard																						
Abs.	775	72.63	78	74.29	87	82.08	88	84.62	73	64.04	83	76.15	76	74.51	65	64.36	65	61.90	84	80.77	70	64.81
ssm	4	.37	1	.95					1	.88	1	.92			1	.99						
sm	83	7.78	6	5.71	8	7.55	3	2.88	7	6.14	7	6.42	6	5.88	10	9.90	15	14.29	8	7.69	11	10.19
+	130	12.18	15	14.29	7	6.60	9	8.65	18	15.79	9	8.26	15	14.71	15	14.85	18	17.14	8	7.69	15	13.89
+ +	64	6.00	4	3.81	4	3.77	4	3.85	13	11.40	7	6.42	3	2.94	8	7.92	6	5.71	3	2.88	12	11.11
+ + +	11	1.03	1	.95					2	1.75	2	1.83	2	1.96	2	1.98	1	.95	1	.96		

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8: Coon E-5 (1929-30; 46-48) 1950 EGI Albania EGI
Highland Ghegs

- 54 p -

	Total Series		MEM		DUK		MEJ		HAS		LUM		PUK		MIR		ZAD		MAT		DIB	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
V. PIGMENTATION																						
Skin Color																						
Total	1067		105		106		104		114		109		102		101		105		104		108	
Light	977	91.57	105	100.00	101	95.28	100	96.15	91	79.82	99	90.83	92	90.20	86	85.15	100	95.24	94	90.38	100	92.59
Medium	83	7.78	0	0.00	5	4.72	4	3.85	22	19.30	8	7.34	8	7.84	14	13.86	4	3.81	10	9.62	8	7.41
Dark	7	.66	0	0.00	0	0.00	0	0.00	1	.88	2	1.83	2	1.96		.99	1	.95	0	0.00	0	0.00
Vascularity																						
Total	1066		105		106		104		113		109		102		101		105		104		108	
Abs.	18	1.69			1	.94	2	1.92			1	.92	5	4.90	5	4.95	2	1.90	1	.96	1	.93
ssm	1	.09											1	.98								
sm	207	19.42	21	20.00	10	9.43	[illegible]	21.15	22	19.47	22	20.18	21	20.59	33	32.67	20	19.05	18	17.31	17	15.74
+	711	66.70	70	66.67	95	89.62	78	75.00	52	46.02	74	67.89	65	63.73	53	52.48	69	65.71	73	70.19	77	71.30
+ +	128	12.01	14	13.33			2	1.92	39	34.51	12	11.01	9	8.82	10	9.90	14	13.33	12	11.54	13	12.04
+ + +	1	.09											1	.98								
Hair color, head																						
Total	1030		105		106		103		96		102		102		101		105		102		99	
Black	423	41.07	40	38.10	22	20.75	42	40.78	59	61.46	46	45.10	40	39.22	53	52.48	43	40.95	32	31.37	41	41.41
Dark brown	476	46.21	47	44.76	70	66.04	54	52.43	22	22.92	47	46.08	54	52.94	35	34.65	49	46.67	53	51.96	42	42.42
Red brown	16	1.55	1	.95	4	3.77	1	.97	1	1.04			1	.98	1	.99			5	4.90	2	2.02
Light brown	90	8.74	14	13.33	7	6.60	4	3.88	7	7.29	6	5.88	6	5.88	11	10.89	13	12.38	11	10.78	10	10.10
Ash blond	2	.19					1	.97													1	1.01
Golden	21	2.04	2	1.90	3	2.83	1	.97	6	6.25	3	2.94	1	.98	1	.99			1	.98	3	3.03
Red	2	.19	1	.95					1	1.04												
Hair color, mustache																						
Total	1054		105		105		103		109		105		102		101		105		104		106	
Black	65	6.17	4	3.81	3	2.86	9	8.74	8	7.34	9	8.57	7	6.86	10	9.90	3	2.86	6	5.77	5	4.72
Dark brown	277	26.28	35	33.33	39	37.14	42	40.78	22	20.18	29	27.62	29	28.43	24	23.76	15	14.29	25	24.04	16	15.09
Red brown	376	35.67	36	34.29	41	39.05	23	22.33	30	27.52	34	32.38	25	24.51	42	41.58	49	46.67	41	39.42	49	46.23
Light brown	195	18.50	19	18.10	11	10.48	19	18.45	24	22.02	20	19.05	30	29.41	13	12.87	23	21.90	17	16.35	18	16.98
Ash-blond	4	.38			1	.95	1	.97					1	.98					1	.96		
Golden	103	9.77	7	6.67	4	3.81	6	5.83	20	18.35	12	11.43	8	7.84	5	4.95	10	9.52	14	13.46	17	16.04
Red	34	3.23	4	3.81	6	5.71	3	2.91	5	4.59	1	.95	2	1.96	7	6.93	5	4.76	1	.96		
Eye color																						
Total	1067		105		106		104		114		109		102		101		105		104		108	
Black	1	.09			1	.94																
Dark brown	144	13.50	7	6.67	25	23.58	24	23.08	8	7.02	19	17.43	13	12.75	15	14.85	6	5.71	9	8.65	15	13.89
Light brown	32	2.99	2	1.90			1	.96	2	1.75	2	1.83	1	.98	2	1.98	2	1.90	5	4.81	15	13.89
Dark light brown	1	.09																	1	.96		
Gray brown	537	50.33	52	49.52	57	53.77	56	53.85	55	48.24	55	50.46	53	51.96	40	39.60	56	53.33	55	52.88	53	49.07
Gray brown	80	7.50	9	8.57	4	3.77	5	4.81	11	9.65	4	3.67	10	9.80	17	16.83	5	4.76	12	11.54	3	2.78
Black brown	204	19.12	27	25.71	14	13.21	11	10.58	26	22.81	20	18.35	20	19.61	23	22.77	30	32.97	13	12.50	18	16.67
Gray	1	.09																	1	.96		
Gray blue	2	.19													1	.99			1	.96		
Blue	64	6.00	8	7.62	5	4.72	6	5.77	11	9.65	9	8.26	5	4.90	3	2.97	6	5.71	7	6.73	4	3.70
Unlike	1	.09					1	.96	1	.88												

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8: Coon E-5 (1929-30; 46-48) 1950 EGI Albania EGI
Highland Ghegs

	Total Series		MEM		DUK		MEJ		HAS		LUM		PUK		MIR		ZAD		MAT		DIB	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Mixed eyes, degree of pigment																						
Total	824.5		88		75		72.5		93		79		83		81		91		82		74	
+ + + D	17	2.06	2	2.27	2	2.67	3	4.14	1	1.08	2	2.53	1	1.20	1	1.23	1	1.10	2	2.44	2	2.70
+ + D	217.5	26.38	23	26.14	30	40.00	15	20.69	22.5	24.19	18	22.78	18	21.69	29	35.80	16	17.58	29	35.37	16	21.62
Even	198	24.01	17	19.32	11	14.67	15	20.69	22	23.67	20	25.32	23	27.71	19	23.46	30	32.97	21	25.61	18	24.32
+ + L	287.5	34.87	37	42.05	22	29.33	29	40.00	35.5	38.17	33	41.77	31	37.35	23	28.40	28	30.77	21	25.61	26	35.14
+ + + L	104.5	12.67	9	10.23	10	13.33	10.5	14.48	12	12.90	6	7.59	10	12.05	9	11.11	16	17.58	9	10.98	12	16.22
Iris																						
Total	1067		105		106		104		114		109		102		101		105		104		108	
Homogenous	238	22.31	17	16.19	31	29.25	31	29.81	21	18.42	30	27.52	19	18.63	20	19.80	14	13.33	19	18.27	33	30.56
Rayed	412	38.62	54	51.43	48	45.28	42	39.38	56	49.12	36	33.03	45	44.12	28	27.72	35	33.33	30	28.85	35	32.41
Zoned	402	37.68	31	29.52	27	25.47	31	29.81	35	30.70	43	39.45	36	35.29	49	48.51	54	51.43	55	52.88	39	36.11
Spotted	14	1.31	3	2.86					2	1.75			2	1.96	4	3.96	2	1.90			1	[illegible]
Unmatched	1	.09					1	.96														

[p. 54(g)]

300 PHYSICAL ANTHROPOLOGY STUDIED BY PROBLEMS: AGE, FUNCTION, ENVIRONMENT, AND HEREDITY

000 WHEN the earlier version of this report was written it followed the then usual scheme of dealing first with measurements of the body, then indices derived from the same, then with measurements and indices of the head and face, and finally with observations. It followed the order of the measurement blank, which had been made up for speed and convenience in measuring. Speed and convenience in measuring are important in the field, but in the statistical laboratory their utility ceases. The criteria measured and observed exist only to give us evidence by means of which problems may be solved. The order of subjects to be explored, therefore, should be patterned on problems, rather than on classes of criteria.

[121] The chief problem of the present study is: *What is the racial position of these Mountain Ghegs*, whose environment we have described and whose cultural history we have traced?

The study of race is a study of one department of *heredity*, or genetics, subject to certain controls. These controls are breeding habits, sex, age changes, function, and environment. We have already explored the breeding habits of the population exemplified by our statistical sample. We know in large measure whence came the ancestors of these people, and at what times, and how these mountaineers have regulated their matings from the time of their arrival to the present. As human populations go this material is well documented.

A gene is best described as a capacity for performance. The extent to which this capacity is reached in the organism is a function of a number of factors. One is *sex*. This means simply one should not include both males and females in the same series. Differences between males and females in anatomical and physical characters may be racial. In the present sample we had to forego the measurement of females for reasons of expediency. Another is *age*. The organism changes throughout life; the body grows from birth to maturity, and then certain parts of it shrink again with senility. Different parts of the body grow at different rates. The long bones cease to grow after their epiphyses have fused, and the bones of the skull after the sutures have closed. However, the bones of the face keep on growing sagittally, at a reduced rate throughout life. Changes in the measurements of bony areas in the living are caused, in the adult, by changes in the thickness, elasticity, etc., of the soft parts which surround and fit between them.

In the male hair appears on the face after puberty, and in many cases disappears later from the top of the head. Graying sets in, and if one lives long enough the hair will ordinarily become white. The teeth erupt at different times and in a regular order. Age changes in man are not as drastic as in insects, which go through larval and adult stages, but they are quantitatively great enough to upset comparisons between samples if they are not controlled. They are genetic in the sense that *rates of change* in many characters seem to be inherited. These rates may, however, be altered by extreme conditions of function and environment, and hence the whole problem of ageing in man is not a simple one.

A third factor is *function.* Function is essentially the operation of the organism, or its motion. This motion may be defined as the sequence of regular and repetitive changes in the organism which result from the expenditure of energy on the scale of time within the limits of a state of equilibrium. When these limits are breached the regularity and repetitive character of the motions cease. The organism, no longer an autonomous entity, is dead. As with age, body functions are in part genetically operated, since each individual inherits capacities for their performance. As with age again, they are partly subject to the limitations of environment, which gives them the material to work with. And further, they are subject to changes with age.

000 Washburn has shown[1] that the size and shape of some anatomical characters are dependent on use. By removing one jaw muscle of rats, he observed that the bony structure changes asymmetrically in response. Many of our anatomical characters which most physical anthropologists have long considered purely racial in the genetic sense are in fact subject to functional limitations. This may be seen mostly clearly in the jaws and teeth, since one of the most varied of human anatomical functions is *eating*. Variations in eating habits are environmental (in terms of available foodstuffs) and cultural (in terms of bringing exotic foods from other regions and of food preparation in general). Although one may separate environment from culture for other purposes, from the standpoint of what they do to the body, they are one.

The term *capacity for performance* implies function, primarily, and anatomy, in a derivative sense. Our present data are almost wholly anatomical. It would be far more satisfactory to have data on a balanced combination of both functional and anatomical characters—representing motion and the product of motion. More recently collected samples from other areas include extensive data on the different kinds of blood groups: the *O, A, B, AB* sequence (the only one known at the time of my investigation); the many subdivisions of *A*; the *m, n, mn* series, with subdivisions; the rhesus group, and others which are being studied momentarily. As these categories increase, blood grouping becomes increasingly useful. [121] [143] Unfortunately this present study will have to do without it. I did not take blood samples for the *O, A, B, AB* series because the Mountain Ghegs attach much ritual significance to bloodletting, even in small quantities. Had I tried to take a little of theirs, they might have drained off much of mine. The risk of losing the entire series, and my life as well, did not seem to justify such an attempt.

Although anatomical characters may be derivative, they are also selective, and this introduces our fourth factor, *the environment*. It is our anatomy which we expose to the rigors of the environment and which therefore

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[1] Washburn, 1947.

000 qualifies our capacities to function. Since these functions are subject to selection, so is anatomy, and anatomy may be the deciding factor. For example, resistance to disease is functional and in large measure hereditary.[2] A specific disease, tuberculosis, has greater success in long narrow lungs than in more nearly globular ones. Long narrow lungs are found in long narrow bodies, and more globular lungs in more globular bodies. In regions where exposure to tuberculosis is critical, there will be a selection for stockier, deeper chested body types. Over the million years or more of man's existence as a two-legged, talking, fire-using primate, he has been exposed to enough selective forces to account for all the anatomical changes visible in human races as they exist today. Anatomy is an end product, resulting from the effect of outside forces on body functions; but the anatomy itself qualifies function, and hence it plays an active as well as a passive role. The current fashion of slighting anatomy in the study of race is shortsighted.

121 In our series there are 2 principal ways that environment can affect anatomy. One is through nutrition. As we have seen, the Gheg mountaineer lives on the produce of the soil in his immediate neighborhood, and these soils vary. Hence we have an excellent chance to study the effect of differential nutrition on anatomy in segments of a genetically related population. Another is through cultural habits, in particular the habit of cradling infants. This in turn may be qualified by differences of nutrition. Here we are at the heart of the Dinaric problem, the question to which this study is devoted.

Once we have taken into account and quantitatively evaluated the various results of age, function, and environment, we are left with a number of qualified anatomical characters, which until proven otherwise can be called hereditary. Then we can see whether or not the area is a racial unit, and how its population and those of its subareas, if any, fit into the general human and specifically European racial scheme.

We are faced, therefore, with the following problems:

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[2] See Coon, Garn, and Birdsell, 1950.

a. What are the anatomical peculiarities of these Ghegs whom we have measured?

b. To what extent are the constants which we have determined dependent on age?

c. Has the function of the jaw, including manner and amount of chewing, any effect on the size and shape of the masticatory apparatus?

d. Have differences in soil and hence nutri-

121 tion anything to do with body size and proportions?

e. Has the Gheg practice of cradling infants produced any effect on head and face form?

f. What is the racial position of our sample, once these last 4 potentially qualifying factors have been controlled?

In each of the next chapters, one of these problems will be considered. 1

1 [see cat. 116, pp. 58b - 98e -- Analyst]

200 THE MOUNTAIN GHEG PHENOTYPE

THE SERIES AS A WHOLE

I. The Body

OUR 1067 Gheg mountaineers range from the metric equivalent of 4 feet, 5 inches to 6 feet, 4 inches, with a mean at approximately 5 feet, 7 inches (169.7 cm.). This mean falls on the borderline between *medium* and *tall* in the standard classification of Martin.[1] For Europeans, they are tall. They are taller than most Tosks, although regional Tosk populations may turn out to be as tall. They are shorter than the Montenegrins and Bosnians immediately north and northwest of them, and about the same as the Dalmatians and the taller of the Tyrolese. Aside from their northern neighbors, only the Ukrainians, Scandinavians, and British are consistently taller among European populations. Native-born Americans are also taller.

The rather limited set of body measurements and indices available indicates a normal European position, but a little on the long-limbed and lanky side. In shoulder breadth, span, bi-iliac, sitting height, and derivative indices which relate to stature, these mountaineers resemble the Scandinavians and British more closely than the stockier central and eastern Europeans. Finding it impossible to persuade the majority of my subjects to maintain an "at rest" position while I was measuring their chest diameters, I measured them at full inspiration, and hence the figures are much higher than those of other series. I believe that most of these men had well-developed chests, as studied by any technique.

The 12 observations on body form give a more detailed if less objective picture (see table 4)[1] The mean point is supposed to represent a hypothetical norm for Europeans. The general musculature is just about average; variation is not great. Necks are medium to short, and medium to thin; shoulders are on the square side of medium, chests a little larger than average. The back is unusually straight, with little lumbar curve; the abdomen rarely

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[1] Martin, 1928, vol. 1, p. 255.

[1] [See cat #6, p. 54f-54q -- Analyst]

141 prominent, the buttocks medium to small, the calves well developed, the heels a little more projecting than expected, the foot arch about [142] medium. This is a picture of an average man who has led an active out-of-door life in a hard but healthy environment, on a minimum of food which is nevertheless well balanced; he is muscular, lean, and accustomed to walking long distances over rough terrain. From the neck down it would be hard to distinguish him from a shepherd in the Scottish Highlands, a Norwegian from the fjord country, or an Appalachian mountaineer.

[147] Only one physiological test was made: dynamometer squeeze. Despite the cold weather, despite the stiffening of fingers through years of ploughing, the mountaineers produced a mean of 112 pounds, ranging from 45 to 190 (see table 9).

II. The Face

141 From the neck up the resemblance to Scot
144 and Norwegian would continue in most respects, but would disappear in others. In the more noticeable dimensions of the face it would be quite close. The Albanian mountaineers have moderately long faces, both in the distance from nasion to alveon (the point on the gums between the 2 upper median incisors) and from nasion to menton. It is hard to make close comparisons because individual anthropometrists vary greatly in locating these points. Comparing them with series of which one can be moderately sure that the same techniques were used, we see that the Ghegs are about the same in face length as populations which are predominantly Nordic or which represent the larger varieties of Mediterranean —like the English, the Riffians, and the Basques, and shorter faced than populations with an excess of marginal pre-Neolithic genetic elements, like the Irish and Norwegians. They are longer-faced than the small Mediterranean peoples like Spaniards and southern Italians. The upper face is relatively long in proportion to the total face height; this is usually, in Euro-

141 144 pean populations, found among peoples who are predominantly Mediterranean in type, but not very different from the situation in some populations usually considered Nordic.

The minimum frontal diameter, the only measurement usually taken of the forehead, is another troublesome criterion from the technical standpoint. Variations in technique between anthropometrists render most comparisons specious. Using only series which we know to be comparable, one can easily see that the Ghegs, with a mean of nearly 109 millimeters, are broader in this dimension than the long-faced Europeans to whom they are also similar in stature and body build; most of the Mediterranean and Nordic series run to 102-106 millimeters. In the bizygomatic, which is difficult to get wrong, they are again more comparable to the larger and broader-faced European populations. Here they fit in with the larger-faced local populations of Norway and Ireland, and exceed standard Nordics and Mediterraneans. In the bigonial, however, this excess is much smaller. As a result the typical Gheg face, like that of the traditional Basque, looks like an equilateral triangle set on its apex (*frontispiece*).[1]

141 The nose height of the Ghegs is exceeded by few in Europe, or in the world. Several factors contribute to this position, including the fact that the nasal septum and tip among the older men were so depressed that age changes of the soft parts must have played a conditioning role in my measuring. At the same time the nose breadth is among the narrowest in Europe and the world, and the nasal index is extremely leptorrhine.

The ratio between forehead and face breadths (zygo-frontal) is high in all Dinaric series, the Ghegs included; it reflects the unusual width of the forehead. The zygo-gonial is even higher, for the same reason, coupled with the fact that the bigonial diameter is relatively less than the bizygomatic. The facial index of the present series falls on the borderline between Martin's categories of mesoprosopic and leptoprosopic—although the Gheg faces are large, their length-breadth proportions are moderate. This is not true of the nose, which has one of the lowest nasal indices on record, placing it in the hyperleptorrhine category.

[1] [see cut no., facing title page -- Analyst]

141 [128] Thirty-eight observations piece out this picture. Impressions of the foreheads of 1067 men show them to be for the most part of medium height and a little more than medium breadth, with a little less than medium slope on the average.* The browridges run moderately 142 large, and glabella is usually prominent. Eyefolds are usually absent, but when they do occur are almost always external, the so-called "Nordic" fold which is common with all narrow-faced Europeans. The almost complete absence of median and internal folds differentiates these people sharply from the Mongoloid and east Baltic populations of northeastern Europe. The wide opening of the eyeslit further emphasizes this difference. Almost one individual out of five shows a little eye obliquity, reminding one of Near Eastern Mediterranean types.

The face itself is characteristically gaunt; the malars rarely protrude forward and their lateral extension is only medium. The cheeks are medium to thin, and usually wrinkled, with firm lines around the mouth. The gonial angles protrude only to a normal extent judging by ordinary western European standards. This lean, drawn, and weather-beaten appearance of the face heightens the resemblance of these people to the Scots, Norse, and Basques. The 5 observations on the ears show nothing uncommon for Europeans. The lips run a little above medium in integumental (muscular) thickness, and unusually thin in membrane, reflecting probably bite and eating habits as much as race; they are also less everted than in the normal run of familiar European whites. The lips of the Ghegs look more like those of family portraits of the Revolutionary period than like those of modern Americans. The observation on chin prominence is based on actual slope rather than on fidelity to an ideal mean; the presence of 23 per cent of *sm* chins is no greater than would be found in any other narrow-jawed European population. Most of the chins are median; the bilateral form (discovered through palpation) goes with the Alpine and other pre-Mediterranean types in Europe as well as with individuals of unusual robusticity.

The most distinctive feature of the Mountain Gheg face, the nose, almost never springs from glabella without depression, according to

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*[See cat. 116, pp. 54g-54h--Analyst]

142 the Greek ideal. Although not unusually high, its root is exceptionally narrow. Its bridge is usually both high and narrow. This combination yields a high frequency, in fact a majority, of convex nasal profiles, giving the Gheg his traditional hawklike appearance. The tip of the nose is medium to thin, more often straight or elevated than depressed, with medium to compressed wings and usually a straight septum. This nose, as the forward segment of a gaunt, triangular face, gives the classical Dinaric his impressive facial appearance.

III. The Head

141 So far we have found only a few measurements and observations to differentiate the ordinary Gheg mountaineer from the shepherd of the Scottish Highlands, the Basque, and the inland Norwegian to whom we first compared him. When we remove his felt cap, however, and study his head, we find that the resemblance ceases. His head is 10 whole millimeters shorter than those of his Atlantic-bordering simulacres, resembling in this respect eastern and central European peoples, and the inhabitants of Armenia, Anatolia, parts of the Caucasus, and the Lebanon. At the same time it is much broader, in fact it is among the broadest heads in Europe. It is difficult to find its exact position regarding height, since head height is notoriously subject to the personal equation. Judging by only those series of which I am sure, I consider the Gheg heads moderately to more-than-average elevated. They do not, however, reach the extremes in this dimension that they do in length and breadth. In the indices of the head, these people are fully brachycephalic, although less extreme in this respect than some of their neighbors, notably the Tosks and some of the mountain-dwelling Yugoslavs, among whom mean indices of 87 and 88 have been recorded. In the length-height indices they rank as hypsicephalic, while in the breadth-height index they take a low position. This merely reflects the moderate head height in comparison with an extreme cranial breadth. The indices which serve to compare the parietal breadth with facial diameters—fronto-parietal and cephalo-facial—both emphasize the disproportion between a very broad hind-head and moderate facial breadths. The fronto-parietal and cephalo-facial indices, relating the forehead

141 and face breadths to that of the rear segment of the head are low, but not unusually so, because the forehead and zygomatic arches are also somewhat wider than the thin appearance of the face would lead one to suspect.

We have seen already that the forehead tends to be a little straighter, or less sloping, than with most of the hawk-visaged non-Dinaric European peoples; this fullness of the forehead is matched by a correspondingly well-developed temporal fullness. At the rear, however, the skull shows a tendency for less than the normal degree of occipital protrusion, and in 31 per cent of individuals the occiput is actually flattened. An even greater ratio, 44 per cent, show flattening in the lambdoid region, and in 29 per cent of cases we find the anomaly known as bathrocephaly, which is a failure of the parietal bones to unite smoothly with the occipital at lambda, with a shelf or depression at the critical point, reminding one of a softball that has been knocked lopsided and started to come unstitched. The back of the head is clearly the most unusual and hence interesting portion of the Gheg anatomy. The same would be true of course in the case of Dinarics and Armenoids from other countries.

A further fact that seems highly suggestive is that 36 per cent of our subjects (most of whom, as we shall see later, possess some kind of flattening) have noticeably asymmetrical skulls. Were this asymmetry a normal variant from the usual condition, one would expect more individuals in the *sm* than in the *plus* categories, but this is not the case; asymmetry itself seems to have a normal distribution wholly aside from the absent category. Furthermore, it is 2.4 times as frequent on the right as on the left side, which suggests a functional association. Facial asymmetry, on the other hand, is very rare, accounting for only 6 per cent of the whole, and without significant distinction between right and left. Handedness was determined by asking the men to pick up a stone, by tossing them a stick, etc. Most were illiterate, and the choice of hand for eating was dictated by custom. The 7.6 per cent of left handed and ambidextrous is undoubtedly far too low a number—conditioning probably affected catching, throwing, and picking things up to a certain extent too. The ratio shown by the cranial asymmetry is probably nearer the truth genetically.

IV. The Pilous System

142 The eyebrows of the Gheg mountaineers are close to the European norm, if such a position can be postulated; perhaps they are a little thicker and more concurrent than those of most northern and western populations, but if so the variation is slight. Thirteen more observations show that the Dinaric race as exemplified by these Ghegs is equally normal by European standards. It was not easy in each case to determine hair form. Some men wore scalplocks, and others let the back hair grow long, but others shaved their heads, and if they had done this recently and lacked long mustaches, my estimate was correspondingly less accurate. It is possible that more should for this reason be in the *straight* category, but not many more. Slightly wavy hair is characteristic, and it is of medium to fine texture. Straight coarse hair such as one finds among Mongoloids and many Eastern Europeans is virtually lacking, and curly hair rare. Baldness is rare, particularly considering the age of the sample (of which more later). The thickness of the head hair (in the case of bald men this is observed on the part of the scalp which still has hair) is about medium, while the face hair, including mustache, cheeks, and jaw, are probably a trifle heavier than with northern and eastern Europeans, although not equalling the development of the Alpine population of Bavaria and parts of France. Luckily most men wore luxuriant mustaches and shaved their beards infrequently. Despite their age these mountaineers seem to have had slightly less hair on their limbs and chests than expected in view of their beard growth. One is reminded of a normal Nordic and Mediterranean development rather than that of Alpines. The number of men with fully white hair or beards was negligible; grayness of the head was more prevalent than that of the mustache and beard. In most cases, however, it was possible to tell the color of the still pigmented hairs.

V. Pigmentation

Skin color was observed on supposedly unexposed surfaces of the under arm and chest. The vast majority were about the same as the examiners—a pinkish white approximating von Luschan #7. The others were brunet white, in no case darker than one expects to find

142 among Greeks or Italians. Almost all possessed the pink or red vascular flush that comes to light, thin skin with outdoor living. Since the measuring was done in the dead of winter, either out of doors or in chilly houses, and since many of the men were inadequately dressed, their rosiness is not surprising.

About one of 9 men had hair that could be called blond or red; of the rest little more than a half were brown haired, and the others black. *Dark brown* included many who might better have been labeled *brown* without further qualification. The mustaches were much lighter; dark and red browns are the rule, while light browns, extreme blonds, and reds come to nearly a third of the whole. Only one-sixth of the sample had pure dark iris pigment, but the number of pure blues and grays was only half as great as that. A three-fourths majority had eyes that were mixed in color, and of these the light mixtures predominate. The prevalence of mixed eye types is reflected in the ratios of rayed, zoned, and spotted irides.

In their pigment characteristics the Mountain Ghegs are about half way between blond and brunet pigment extremes as delimited by the European range; they run to light skins, dark head hair, and intermediate to light mustaches with much red, and a light mixed eye color. In pigmentation they are not very different from the Highland Scots, the Basques, and the Kentucky mountaineers--but considerably darker than the Norwegians. They are fairer than the Italians of the portions of Italy opposite them, and fairer than Tosks, Greeks, Bulgarians, and Serbs, while probably little different from Montenegrins, Bosnians, and Tyrolese.

The Gheg phenotype is thus represented by a moderately tall man, long limbed, strong boned, well muscled, spare and lean, with a thin, bony face of moderate dimensions, a long, narrow, aquiline nose, a short, broad head, often flattened behind, a well-developed mustache and beard, both of which vary in color, a light skin, and mixed eyes. His body hair is only moderately developed. In all characters except those concerned with the breadth and flattening of the head he resembles the Nordic and larger Mediterranean populations of the fringes of Europe more than the stockier, flatter-nosed, and hairier peoples in its east and center. If

142 one could compare a series of skeletons of such men with those from the Illyrian Iron Age cemetery at Glasinac, it is hard to see what differences between the means would appear except for the greater frequency of broad, and often occipitally flattened, heads in the living population.

VARIABILITY OF THE SERIES AS A WHOLE AND OF THE TRIBES

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*128 Any living population may be expected to show a normal frequency distribution in each metrical criterion. This distribution is expressed by the standard deviation (see table 3B).[1] Standard deviations themselves vary. If the standard deviation exceeds a certain nu-

[1] [see cat 116, pp. 54d-54e --Analyst]

141
128 merical value, one is led to suspect that the series includes individuals from not one, but several populations, which differ from each other in the criteria concerned.

In order to provide an easy test for this, Howells[2] has compiled a table of means of standard deviations for a large number of series, each of which consists of over 50 individuals; he has likewise devised the "sigma ratio," to compare individual sigmas with the mean. Table 5[1] shows how this may be applied to our Albanian material. In most of the measurements and indices of the *face*, our Mountain Ghegs possess, as a whole, a normal

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[2] Howells, 1936, pp. 592-600.

[1] [See cat 116, p 62e --Analyst]

141 *128 degree of variability. In one character, the nasal index, they possess a remarkable homogeneity. In stature, head length, head breadth, and the cephalic index, they show a greater variability than might be expected from a normal unit population. This is particularly marked with the cephalic index. Thus, using variability as our criterion, we find that *the Mountain Ghegs are a population as far as the diameters and proportions of the face are concerned, but not when stature and the dimensions and form of the cranial vault are considered.*

If they are not a population, then they are a compendium of populations, which may or may not be the tribes. In most criteria the tribes show a range of variation on either side

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of the 100 mark; in the nasal index all fall far below; in the cephalic index all fall far above. The nose height is always more variable than Howell's mean, and tribal variations in the cephalic index reach remarkable heights. From this we may deduce that *the variation in stature is due to the regional size differences which we have already seen,* that *the variation in cephalic index is due to some factor operating within tribes as well as between them,* while *the extraordinary homogeneity in nasal index is connected with a great variability in the nose height, which varies with the nose breadth instead of independently.*

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It is conceivable that the tribes themselves differ in amount of variability. In order to test this let us turn to table 3c.[1] If we average the values of V for 32 characters, from stature to nasal index, we obtained the following (see table 6).

TABLE 6: VALUES OF V FOR 32 CHARACTERS, BY TRIBES.

	Mean V
Total series	5.26
Mean of tribes	5.09
MeM	5.13
Duk	4.95
MeJ	4.95
Has	5.37
Lum	4.84
Puk	5.14
Mir	4.97
Zad	5.14
Mat	5.32
Dib	5.11

As a whole, the tribes are less variable than the total series. Only 2 tribes, Has and Mati, form exceptions to this rule. The Has sample was taken from a single locality, the Mati one from a widespread and religiously diverse population. But even with them only one coefficient of variation is *significantly* greater than its mate in the total series: Has is more variable in head height than the total series by 4.71 times p. e.

Four tribes are notably less variable than the whole; Luma, Dukagin, Malsia e Jakovës, and Mirdita. *Two of these are our only 100 per cent Catholic tribes, noted for their genetic isolation.* On this basis their relative homogeneity is understandable. But Luma and Malsia e Jakovës are mostly or wholly Moslem, and situated on the main traffic routes. How do they differ from the others? The answer, which forms part of the next section, is simple: *they are the least brachycephalic of all the tribes.* It is in the area of the cranial vault that much of our tribal differentiation lies.

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* Elaborate tables have been prepared to show the significance ratios of the differences between means of all metrical characters of all tribes, and the same for all categories of percentages in the observations. The cost of publishing such tables is prohibitive. In the [contin p.63b -- Analyst]

[1] [see cat 116, p.54e -- Analyst]

PHENOTYPICAL DIFFERENCES BETWEEN TRIBES; STATISTICAL VALIDATION

141 Let us examine the geographical distribution of anthropometric characters among the tribes. We must not forget that the total area is no larger than Connecticut, that the population of this miniscule region has seen no foreign invasions, no infiltrations or immigrations, for at least 400 years, and that it may be derived historically from a single known source. Under ordinary conditions one would not expect to find wide physical differences. But the conditions in Malsia e Ghegnisë are not ordinary. The people, as we have seen, live in narrow, mutually isolated valleys, marrying within restricted genetic channels, and eating the products of local and mutually differing soils.

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128 The result is what one might be led to expect. The samples from the 10 tribes differ more from each other than do the native-born white Americans of native parentage within the 48 states. And these differences are so great that each tribe forms a statistically separate population from all others. We are dealing with 10 different populations, phenotypically. Evidence for this can be presented briefly.[3]

In each measurement and index listed on table 3c[1] 45 possible intertribal differences may be found. Each tribe also differs from the total series, making 55 differences for each criterion. The number of significant (3 or more times p.e.) differences out of a possible 10 and 45 are as shown in table 7.[2]

The figures show that the 10 tribes of Mountain Ghegs differ from the total series significantly in nearly four-tenths of all criteria measured, and from each other in even more. Four per cent is the proportion in this category allowed by chance alone.[4] Differences are far greatest in the gross size dimensions of the body, not including the special measurements of the chest. Body proportions vary less than size itself. Above the neck, the 3 principal

[1] [See cat. 116, p. 54e -- Analyst]

[2] [See cat. 116, p. 64a -- Analyst]

[continued from 63a -- Analyst]
following pages of this chapter, parts of them will be summarized. The author will keep them on file on the chance that some one may wish to refer to them in the future.

[4] Goring, 1913.

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TABLE 7: NUMBER OF SIGNIFICANT DIFFERENCES.

	TOTAL	EACH OTHER
Maximum possible	10	45
Stature	6	30
Span	8	32
Sitting ht.	6	28
Biacromial	7	29
Bi-iliac	4	25
Chest br.	3	18
Chest depth	2	22
Rel. span	5	17
Rel. shoulder ht.	[illegible]	13
Rel. shoulder br.	[illegible]	22
Rel. sitting ht.	3	17
Head lgth.	7	28
Head br.	5	25
Head ht.	3	21
Minimum frontal	5	20
Bizygomatic	4	17
Bigonial	1	11
Total face ht.	3	21
Upper face ht.	2	11
Nose ht.	3	21
Nose br.	3	15
Cephalic index	6	30
Length ht. index	4	21
Breadth ht. index	7	26
Fronto-parietal index	4	21
Cephalo-facial index	3	19
Zygo-frontal index	2	7
Fronto-gonial index	2	6
Zygo-gonial index	2	5
Facial index	4	25
Upper facial index	3	25
Nasal index	2	13
Total	125	641
	(320)	(1760)

BY CLASSES OF CRITERIA: PERCENTAGE OF ALL POSSIBLE SIGNIFICANT DIFFERENCES

	TOTAL	EACH OTHER
5 Stand. body meas.	62%	52%
4 Stand. body indices	35	38
2 Diam. of chest	25	44
3 Diam. of brain case	50	55
3 Indices of brain case	57	50
2 Face diam.	30	37
3 Indices of facial br.	20	13
3 Sagittal-br. indices of face	30	47
2 Head-face indices	35	44
32 Criteria, total	39%	45%

141 *28 diameters of the brain case and their indices are most divergent. The horizontal diameters of the face and their indices differ the least; if a decision rested on them alone it would be hard to demonstrate racial differentiation in the Gheg mountains. Sagittal diameters of the face, and the sagittal-horizontal indices, differ more.

From this we may say that in 3 respects the tribes vary metrically from the total and from one another: (1) in body diameters, greatly; (2) in brain case diameters and indices, nearly as greatly; (3) in the gross lengths of the face—particularly from nose to chin—and in indices dependent on these measurements, to a lesser extent. In one respect the tribes show a degree of relative homogeneity—in the constancy of the horizontal diameters of the face. Even here, however, they differ more than chance alone would warrant.

A similar test has been made of intertribal differences in 78 observations given on table 4;[1] here the differences between tribes and total were not calculated—the method used was to calculate the probable errors of percentages by the tables of Ritala,[5] and to test the significances of the differences between them.

Table 8[2] demonstrates that clear intertribal differences are harder to demonstrate in the observations than in the metrical characters, perhaps by virtue of the nature of the criteria themselves. Since 4 per cent of the differences over 3 p.e. can be ascribed to chance in any case, and since an equal allowance might well be made for technical inaccuracy, differences in cleanliness, in appearance at different temperatures, and light conditions, etc., I find it hard to claim valid regional differences in classes of criteria where fewer than 8 per cent
[42] of combinations are over 3 p.e. In face form, in nasal architecture, in hair development, form, and distribution, and in pigmentation, what regional differences occur seem to be of little consequence. These characters are precisely those which most anthropologists feel to be genetic. In these respects, therefore, our Gheg mountaineers are as homogeneous as their history would lead us to expect.

[1] [See cat. 11b, pp. 54f - 54g - Analyst]

[2] [See cat. 11b, p. 65b -- Analyst]

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[5] Ritala, 1933.

141 *128 In the observations of the body and of the brain case, however, they differ more than chance and technical error would justify. In these easily influenced characters, regional phenotypes exist.

REGIONAL VARIATIONS IN BODY SIZE AND FORM

The main difference in body size lies in the north-south cleavage between the tribes living on either side of the Drin. Those to the north are a good 6 centimeters taller than those to the south. These differences are greater to the west than to the east, so that 3 areas may be postulated; a tall northwestern, an intermediate 142 *128 eastern, and a short southwestern. These areas differ also in body proportions, in that the northwestern tribes (Malsia e Madhe and Dukagin) are broad-shouldered and long-armed as well, while the eastern tribes, including Malsia e Jakovës, while tall, are slenderer and narrower in the shoulders, with the southwesterners in these criteria short and slender. The acme of robusticity is reached in Dukagin, whose athletic tribesmen exceed all others to 147 *128 a marked degree in these special criteria. Although we lack constants for weight, which would be most valuable here, we have the evidence for dynamometer squeeze, which reveals their superiority in muscular strength (see table 9).*

Dukagin men are a little stronger than those of Malsia e Madhe, but this difference is not significant. However, both Dukagin and Malsia e Madhe are significantly stronger than all of the other tribes. Among the others, Has, Luma, and Puka are all 3 stronger than Mati and Mirdita; Puka is stronger than Zadrima as well, and Malsia e Jakovës is stronger than

*[See cat. 116, p. 65c --Analyst]

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TABLE 8: INTERTRIBAL COMPARISONS.

	No. of Criteria	No. of Categories	No. of Combinations	No. of Combinations 3 p.e.	No. of Combinations 3 p.e.
Body	12	39	1755	203	11.5%
Head	7	24	1080	131	12.1
Face	25	86	2870	206	5.3
Nose	11	35	1575	96	6.1
Pilosity	16	57	2565	177	6.9
Pigment	7	32	1440	107	7.4
Total	78	273	11,285	920	7.5%

147 *128 Mirdita alone. The same 3 areas stand out again in this test: the northwest, with greatest strength concentrated in Dukagin; the eastern border tribes, including Malsia e Jakovës, Has, Luma, and Dibra; and the southwest, including

Mirdita, Mati, and Zadrima, with Mirdita at the lowest point. It should be observed that the 2 Catholic tribes, Dukagin and Mirdita, supposedly descended from a group of brothers, are the least alike in stature, body proportions, and muscular strength.

TABLE 9: DYNAMOMETER SQUEEZE.

	No.	Mean	σ
Total	1058	112.09 ± .36	15.86
MeM	105	117.95 ± 1.05	15.90
Duk	106	121.20 ± 1.20	18.40
MeJ	104	108.30 ± 1.14	17.20
Has	114	110.05 ± 1.17	18.45
Lum	109	110.25 ± 1.11	17.15
Puk	102	112.80 ± 1.24	18.60
Mir	101	102.50 ± 1.39	20.65
Zad	105	105.75 ± 1.22	18.50
Mat	104	104.65 ± 1.32	19.90
Dib	108	108.25 ± 1.51	23.30

142 *128 In the observations of body form, Dukagin stands out as the most athletic of all the tribes, but in general a north-south division prevails. Mentioning only the significant differences, we see that Dukagin exceeds in general musculature, while the southern tribes are least well developed. The 4 southern tribes (Zadrima, Mirdita, Mati, and Dibra) exceed in percentages of short necks, while Zadrima, Mirdita, Mati, and Has exceed in thin necks. The 3 northern tribes exceed in + shoulder slope, the southern tribes in *sm*. To a certain extent chest development runs inversely to stature; Mirdita and Mati are the chestiest, and

142 *128 Malsia e Jakovës the least so. Has stands out as moderately tall and very chesty. The vertebral borders of the scapulae, supposed to have much significance from the standpoint of general health and vigor, vary little. The lumbar curve is most pronounced in the tribes north of the Drin. None of the Gheg mountaineers had enough to eat to produce protuberant abdomens—in this criterion variation is nonexistent. In general, buttocks are plumpest north of the Drin, where lumbar curve is greatest and hence pelvic tilt most pronounced; these differences between tribes in lumbar curve and buttock protrusion are more marked than any others. Calves are most developed in Dukagin and Mirdita, among the tallest and shortest tribesmen, respectively. The feet show little variability.

142 147 *128 To sum this data up, we find tall men north of the Drin, with stature decreasing rapidly as one moves southward; to the east, the gradient of change is much less marked than in the west. In fact, 3 stature areas may be designated: the northwest, the east, and the southwest. In these 3 areas, in general, the most robust are the big men of the northwest, while the easterners tend to a lankier form. Dukagin stands out above all the others for strength and athletic development, followed closely by the *bairaks* of Malsia e Madhe. Mirdita, followed by Mati and Zadrima, lies at the other extreme. These regional differences are as great as those between Norway and France, or England and Greece.

REGIONAL VARIATIONS IN THE CRANIAL VAULT

141 *128 The head length means vary nearly 7 millimeters, the breadth means 6 millimeters, and the height 4 millimeters, tribally. These differences are significant in 28 out of 45 cases for head length, 25 out of 45 for head breadth, and 21 out of 45 for head height. Heads are longest in the northwest, intermediate in the east, and shortest in the southwest. They are broadest in the northwest and more or less the same elsewhere; in height they exceed in Zadrima and Malsia e Madhe, and are lowest in Mati and Dibra, following in general a NW/SE axis.

These regional variations come out even more markedly in the cephalic index, in which

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31 out of 45 tribal differences (69%) are significant, and in which the westernmost tribes are 3 to 4 index points more brachycephalic than the eastern. In the length-height index only 21 (47%) are significant, the range of means is 4 points, and only Zadrima shows any notable peculiarity. In the breadth-height index the trend is a little more marked: 26 (58%) are significant, and the range again 4 points. In general, head length varies with stature, and head breadth goes east and west, as does the cephalic index, while height indices fail to show a clear geographical pattern.

The observations on the cranial vault elucidate these tendencies in detail: Luma and Puka exceed in occipital protrusion, in which Zadrima, Malsia e Madhe, Has, Mati, and Dibra are notably wanting; Malsia e Madhe, Zadrima, and Mati are high in occipital flattening, while Dukagin, Malsia e Jakovës, Luma, and Puka are low in it. In lambdoid flattening, however, Dukagin is highest, followed by the tribes to the east. The frequencies of these 2 forms of flattening are high enough to account for much of the difference in head form shown by the measurements and indices. How much, will be explored later.

REGIONAL VARIATIONS IN THE FORM OF THE FACE

Malsia e Madhe has significantly broader foreheads than all of the other tribes, which vary little, growing slightly narrower to the east and south. Nine out of 20 of the significant differences between the tribes in this measurement are caused by the peculiarity of Malsia e Madhe. In the bizygomatic, Malsia e Madhe and Dukagin, both broad, account for 12 out of 17 of the significant differences; Dibra, the narrowest, is significantly different from all but 3. The bigonial is the most constant of all measurements, and Dukagin, the widest jawed, accounts for 6 out of 11 significant differences. Only one difference, Dukagin: Dibra, goes over 4 times p.e. One may summarize these differences in face breadth by saying that in general the broadest faces are in the northwest and the narrowest in the southeast; that the greatest differences are in the upper part of the face and the least in the lower.

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In the heights of the face, one tribe stands apart from the others: Has. It has the longest total and upper face heights, by far, of all. In the total face height it accounts for 8 out of 22 significant differences; in the upper face height, 9 out of 11. If we ignore Has, the others are much the same, with the shortest faces, in both dimensions, in the southwestern tribes. Here, then, the dichotomy is, Has versus all others.

The fronto-parietal index, showing the relationship between head breadth and forehead breadth, varies only 2 index points, and as might be expected the broadest-headed tribes have the lowest values, and the narrowest-headed the highest. No single tribe or group of tribes distinguishes itself in this character. The cephalo-facial index, relating head breadth to face breadth, runs much the same way, with equally little variation. The zygo-frontal index scarcely varies at all, and all 6 of its significant differences are due to the fact that Mirdita falls one index point below most of the others, on account of its face breadth, which is a little broader for its size than the others. The fronto-gonial and zygo-gonial indices are even more constant. Four out of 6 significant differences in the former are due to the broad foreheads of Malsia e Madhe, and all 4 in the latter to Mirdita's combination of a medium face breadth and the narrowest mandible of all. *We may consider the Mountain Gheg phenotype a unit in these horizontal proportions of the head and face*, with very slight deviations in the cases of Malsia e Madhe and Mirdita.

The observations of these characters help even more. In the height and slope of the forehead, almost no differences of statistical validity occur, while in the observed breadth of the forehead Ļuma, Puka, and Malsia e Jakovës come out low in the percentage of double and triple plus breadths. No differences of moment are seen in the size of the browridges or in glabella; the foreward jut of the malars, the fullness or wrinkling of the cheeks. In the sidewise thrust of the malars and in the prominence of the gonial angles, not one single significant difference can be found in the percentile values of any category. In the morphological observations which relate to the gross architecture of the face, exclusive of the eyes, nose, and mouth, the tribes are as one.

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If we move down to the chin, however, one tribe differs from all others: Dukagin has fewer *sm* values for chin prominence than any other tribe, and all these are significant; it also has more bilateral chins than all others, and its excess is significant in each case. The chin of Dukagin stands as a notable exception to the otherwise uniform position of the Mountain Ghegs in face structure. That prominent, bilateral chins should be associated with an excess of size and strength is not surprising.

The noses of the Ghegs vary about 3 millimeters in height, and 1½ millimeters in breadth; Has, as might be expected, has the longest noses, but it also has the broadest. Nine out of 21 significant differences in nose height are due to Has, and 6 out of 17 in breadth. The nasal index varies about 4 points, with the lowest values in the east and the highest in the west, but all approximate the lowest human extreme. Out of 13 significant differences, 6 are due to the fact that Dukagin is highest.

The observations of the nose, which carry our study into minute detail, confirm the remarkable regional constancy of form of this organ. In nasion depression there are no significant differences at all; and there are none in that most critical character, the form of the nasal profile. In root height and bridge height, Dibra shows a slight excess over a few others; Dibra is also a little narrower in the bridge breadths, accounting for 8 out of 10 significant differences in this character. Malsia e Madhe accounts for 7 out of 8 such differences in tip thickness, for it is slightly thicker than the others; the eastern tribes are a little thinner. Twelve out of 22 differences in tip position reflect the greater sag in the Has nose, a difference for which we shall presently account. In the form of the nasal wings, another highly significant character, not one tribe has more flaring forms, in a statistical sense, than any other; the few differences between the compressed and medium categories show an excess of the compressed form in Has and Dibra. The shape of the septum is constant, except for Zadrima, which is significantly straight compared to all of the eastern tribes; in the inclination of the septum, the western tribes, Malsia e Madhe, Zadrima, and Mirdita, show a significant tendency to turn down in comparison with those to the east.

141 */128 A few features of the soft parts of the eyes show significant tribal variation. The western tribes, particularly Zadrima, Malsia e Madhe, and Dukagin, have large minorities with external eyefolds, rare in the east and in Mati. Men from Dukagin tend to narrow their eyelids to slits, and this accounts for 14 out of 28 significant differences in palpebral opening. The same tendency in Has accounts for 9 of the rest. In the case of Dukagin, at least, part of this may be due to the fact that I measured them in the snow, in bright sunlight. Most of the tribes had 20 to 30 per cent of slight eye obliquity, but Has with only 8 per cent was significantly below the others. This obliquity was not up, Mongol-wise, but down, as is usual in narrow-faced Europeans.

The lips show a few local differences only: Dukagin has thicker integumental lips than the others, in 18 out of 23 significant cases; Has runs low and Malsia e Madhe high in membranous thickness, to a very minor degree in each case; Malsia e Madhe and Malsia e Jakovës have a little more lip eversion than the others. Only a few of these differences reach 3 times p.e., and only one attains 4. Except for Dukagin's thick upper lip, we can ignore the rest.

Turning to the ears, we find no differences of consequence. We have 6 observations, in all of which only 20 differences of 3 times p.e. or over are found, out of a total of 810 computed. Of these only 4 are over 4 p.e., and one reaches 5 p.e. We may say with confidence that the Gheg tribes are alike in the frequency of the component factors in ear form.

REGIONAL VARIATIONS IN PILOSITY

142 */128 In the observed form of the hair, the ratio of deep to low waves is virtually the same between all tribes, except for Has, which is recorded to have significantly more deep-waved individuals than all other tribes, except for Malsia e Madhe and Dukagin. Aside from [302] Has the others are virtually the same. Owing to the prevalence of head shaving in some tribes, and the fact that my Has sample all lived near the city of Prizren, where modern haircuts are more in vogue than elsewhere, I have no confidence in this distinction. In hair texture, Zadrima shows a tendency in favor of fineness, and Luma of being medium, and both have some statistical validity. Again, I

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do not trust my power of observation enough to confirm these. In baldness, it is Has against the others, a distinction which can be explained on another basis. In the quantity of head hair (apart from bald areas) Dibra shows an excess over most others. Mustache hair quantity, eyebrow thickness, and eyebrow concurrency, show no regional variations, and these are prime racial criteria.

The lateral extension of the eyebrows, however, does vary. Here the split is essentially but not typically NW/SE again; the wide-browed tribal sample being particularly those of Dukagin, Malsia e Jakovës, Puka, and Zadrima, the narrow-browed those of Has, Luma, Mirdita, Mati, and Dibra. In this single criterion 41 significant differences occur. In 10 characters dealing with hair quantity, 124 significant differences exist; one-third of these are therefore found in the single character of lateral extension of the eyebrows. Aside from the variations in cranial vault and for Dukagin's chin, this is the biggest difference in observations to appear so far. In the development of the various segments of the facial hair, aside from the eyebrows, no notable differences are found, and in body hair there is a tendency for Dukagin and Malsia e Madhe to fall low on absents, and for the eastern tribes to be high on the hairiest categories. These tendencies are of a minor nature.

REGIONAL VARIATIONS IN PIGMENTATION

In skin color, only Has shows any consistent difference from the others; the skins of these men were recorded as medium-white rather than light in about 20 per cent of cases; this minority of one-fifth of other-than-fair skins is not only significant statistically, but also probably accurate technically. The Has men were also the more frequently vascular.

In the head hair color, the only differences of importance lie between the black and dark brown categories; all tribes are equally endowed with reds and blonds. Has is outstanding for its predominance of black, and Dukagin of dark brown. This may possibly be explained by age and by haircuts, but it may also be valid. Between them these 2 account for every single statistically significant difference in this character; in all, 20. In mustache color a few differences appear, as for example, 142 *128 Malsia e Madhe, Dukagin, and Malsia e Jakovës tend to be a little stronger in dark browns, Zadrima and Dibra in red browns, and Has and Puka in blond shades, than the others. Of a paltry 14 differences, all but 2 are below 4 times p.e., and can be discounted.

In eye color, a few tendencies appear; Dukagin and Malsia e Jakovës with 23 per cent dark brown, exceed about half the others significantly; Dibra has a concentration of light brown eyes, exceeding all but 2 of the others significantly. Mati and Zadrima have a tendency to exceed in zoned iris forms. These pigment differences may denote very minor genetic variations, but are really of little consequence.

REGIONAL DIFFERENCES BETWEEN TRIBES SUMMARIZED

141 *128 Having been through all of the differences between tribes in all characters measured and observed, and having tested all for statistical significance, we can now list the particular differences which indicate regional variations in the Mountain Gheg phenotype (fig. 12, *a*).[1]

1. The men north of the Drin are taller, more muscular and stronger than those south of it. They also have broader shoulders, longer arms, longer and thicker necks, more sloping shoulders, greater lumbar curves, and more protuberant buttocks. The 2 extremes in these characters are Dukagin and Mirdita. The tribes to the east, from Malsia e Jakovës to Dibra, show little variation in these features; the main drop between north and south falls to the west. These differences are as great as one might expect in a continent, and unusual in so small a territory.

2. Where bodies are largest, heads are largest too. Aside from this heads are shortest, broadest, and highest in the northwest, and the opposite in the east. Occipital flattening reaches its maximum in Malsia e Madhe and Zadrima, while lambdoid flattening and its companion, bathrocephaly, are highest in Dukagin. Tribal differences in head form are as great as those in body size and strength.

3. Faces are remarkably homogeneous in Malsia e Ghegnisë. Tribal variations are at a minimum. A few local peculiarities occur: broad foreheads in Malsia e Madhe; excessive face heights without eye obliquity in Has; Dukagin has a statistically noteworthy excess of bilateral chins, unusually few of which are receding; Zadrima has a tendency toward a straight, downturned nasal septum, and Dukagin to a thick integument in the region of the lips.

4. Has runs bald. The northwestern tribes have

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[1] [see Cat. 116, p.112 -- Analyst]

*128 k Has runs bald. The northwestern tribes have
142 more widely extended eyebrows than those in the
141 southeast.

5. Has shows a minor tendency to medium skin color, and to black head hair; Dukagin tends to dark brown hair. The northern tribes have an excess of dark brown, and Dibra of light brown, eyes.

While the differences in body size and head shape are great, the similarity in face form, pilosity, and pigmentation is also great, and Ghegs look alike. The tribes that diverge from the total picture the most are those around the edges; the big broad-heads of Malsia e Madhe, the muscular cleft-chinned giants of Dukagin, the medium-sized broad-heads of Zadrima, and the minority of light brown-eyed Dibrans, who with their tribal brethren have somewhat narrower faces and noses.

One of the most revealing results of this intertribal comparison is the discovery that the tribes vary most among themselves not in the conventional criteria of race, but in what are usually considered to be minor or inconsequential anatomical features. If we revert for a moment to the statistics of validation, we find that values of 7 times p.e., or over, are most noticeable in the biacromial diameter, in which Dukagin exceeds all comers; span, stature, and sitting height follow in importance. In the biacromial, Dukagin exceeds all but its 2 neighboring tribes, Malsia e Madhe and Malsia e Jakovës, by 10 or more times p.e. Thirty-seven out of 69 intertribal differences in 7 body observations which reached 4 or more times p.e. were concerned with buttocks and lumbar curve; 4 out of 5 that exceeded 6 p.e. were the same. Again Dukagin is the odd tribe.

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*128 In the measurements and indices of the head, 42 differences of 7 or more times p.e. are found, reaching an extreme of 14 p.e. in the comparison between the cephalic index of Malsia e Madhe and Luma. Malsia e Madhe exceeds all other tribes in head breadth by 7 to 11 times p.e.; that is the outstanding result of this inquiry. In the observations of the head, bathrocephaly leads all in tribal differentiation, followed by lambdoid flattening. These 2 features are concentrated in Dukagin, but neither go over 6 p.e. Zadrima is noteworthy not so much for its occipital flattening, in which it shares honors with Malsia e Madhe, as for its lack of lambdoid flattening and bathrocephaly.

In the face, only 2 features attain high ratios of significance: the wide-extending eyebrows of Dukagin, as compared to Has, which attain 9 times p.e.; and in a lesser degree to Dibra and Mati; and the bilateral chins of Dukagin, which approach 9 p.e. in comparison with Puka, its neighbor over the Drin, and 7 with Malsia e Madhe, Mirdita, Zadrima, and Mati.

What are the important intertribal variants, then, in Malsia e Ghegnisë? Not stature, not hairiness, not the shape of the head (although its breadth is important); not the form of the face—but the breadth of the shoulders, the failure of the occipital bone to join the pari-

141 *128 etals smoothly at lambda, the flare of the eyebrows, and the habit of the mandible to form a lump on either side of the chin, instead of a bar in the middle. When we are dealing with relatively homogeneous populations, such as that of a small, isolated segment of a European country, it is in factors like those just mentioned that one obtains the most valid regional differences. It is by the appearance of such differences and their spread in isolation that races are formed. In Malsia e Ghegnisë, the most peculiar tribe by far is Dukagin, which is also the most isolated.

AGE

121 THE dimension of time can never be neglected in studying the properties of bodies, including those of human beings. Time is the scale on which we grow to maturity and shrink into old age. In this particular study time sets us 3 problems: (1) what is the range of the series in terms of age groups, and how do the component tribal subseries vary in this respect; (2) in what way does its age distribution affect the comparability of this with other series; and (3) to what extent, if at all, do differences in age account for the intertribal differences in growth, form, pigment, and pilosity, discovered in the last chapter?

ACCURACY OF THE PRESENT DATA

561 *128 Probably not more than a dozen of the younger men whom I measured knew exactly how old they were. None of the older men did. The Gheg mountaineers work and play by families, and not by age grades. Nothing in their way of living makes a precise knowledge of age useful. Sometimes when I was measuring a group of 20 or 30 men, all from

the same place, certain members of the elder generation might know who was the oldest, and the birth order of the others on down, but they would not know how old any one man might be. Sometimes they could date a birth roughly by some local historic event, and this would give a serviceable anchor. More often I had to use my own judgment on the basis of tooth eruption, loss, and wear; wrinkling, graying, and the like. When asked their ages the men would usually reply in round numbers, "About 50," "Perhaps 40," etc., and most senile individuals declared themselves to be 100.

Possessing no illusions as to my ability to judge age in mature, outdoor-living white males, I believe that the degree of accuracy of the age judgments so made must vary considerably. We are faced with a probable error, not only of sampling, but also of the accuracy of the material itself. The latter renders the use of refined statistical constants specious. Table 10 takes only the first source of error into consideration.[1]

[1] [see cat. 116, p. 71c -- Analyst]

8: Coon E-5 (1929-30; 46-48) 1950 EGl Albania EGl
Highland Ghegs

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TABLE 10: AGE

TRIBE	No.	RANGE	MEAN P.E.	σ P.E.	V P.E.
Total series	1063	18–65+	39.40 ± .26	12.50 ± .18	31.73 ± .66
Malsia e Madhe	105	20–65+	38.05 ± .71	10.80 ± .71	28.38 ± 1.32
Dukagin	106	25–65+	37.80 ± .61	9.25 ± .43	24.47 ± 1.13
Malsia e Jakovës	104	18–65+	35.85 ± .75	11.50 ± .54	32.08 ± 1.50
Has	113	18–65+	44.30 ± .82	12.95 ± .58	29.23 ± 1.31
Luma	108	18–65+	36.70 ± .87	13.50 ± .62	36.78 ± 1.69
Puka	101	18–65+	36.10 ± .92	13.70 ± .65	37.95 ± 1.80
Mirdita	101	21–65+	43.60 ± .85	12.60 ± .60	28.90 ± 1.37
Zadrima	105	21–65+	43.70 ± .78	11.80 ± .55	27.00 ± 1.26
Mati	103	18–65+	35.80 ± .67	10.10 ± .47	28.21 ± 1.33
Dibra	108	18–65+	42.00 ± .88	13.55 ± .50	32.26 ± 1.48

PERCENTILE DISTRIBUTION

	No.	PER CENT
18–20	12	1.1
21–24	99	9.3
25–29	155	14.6
30–34	166	15.6
35–39	162	15.3
40–44	129	12.1
45–49	105	9.7
50–54	88	8.3
55–59	52	4.9
60–64	56	5.3
65+	41	3.8
	1063	100.0

AGE IN THE SAMPLE AS A WHOLE

124 From it we may see that the sample is a mature one, and that it includes a wide spread, from 18 to 65 years and over, with each age grade over 19 represented by a statistically adequate subsample. We must expect our criteria to show every condition from late adolescence to senility. However, being unable to obtain exact age figures even at the lowest age level, I threw out all obviously immature boys no matter how old they claimed to be, and hence the 18–20 group may have been selected. At the other end, I tried not to take bent-over, toothless old men, deformed by the diseases of senile decay. Hence my oldest age grade may also be selected, since senility does not strike all men equally at the same age.

The sample, insofar as it is accurate, gives an age spread suitable for racial study, since it includes the whole span of ages in which racial criteria find their full expression. It can also be used in a limited sense to study age changes. It is, however, no substitute for a study of changes, year by year, in the same individuals. Such a study is hard to make, for the observer himself lives on the same time scale as his subjects. Age changes studied in terms of different individuals have a much more limited application. If the sample is genetically constant in the generations covered (and, as far as we can tell, this one is), then the differences between age groups indicate changes that have been going on among the people concerned. By this means one can hope to track down progressive changes due to changing environmental influences acting on the organism either directly or through the agency of genetic selection.

TRIBAL VARIATIONS IN AGE

Table 10[1] also shows us that mean age varies regionally. The difference between the age of the youngest sample, Mati, and that of Has, the oldest, is 8.50 years, or 8.45 times p.e. This difference is probably great enough to be valid, even when my judgment in assigning ages to the subjects is taken into consideration.

From the sampling point of view only, most of the tribes differ significantly from each other in age means, although the age range of each is virtually the same. Six out of 10 vary

[1] [See cat. 1h, p. 71 c
-- Analyst]

124 from the total mean more than 3 times the probable error. In the following statistical exercises, whenever we compare tribal samples with each other, we must remember that there is an 8-year probable span of age means, from 36 to 44 years, and that we must not consider regionally significant a difference in any criterion which varies less regionally than it varies in this 8-year age span in the series as a whole.

This question is further complicated by the fact that some tribal samples are more dispersed in age distribution than others. This can be measured by the values for the standard deviation. Dukagin has a σ of 9.25 years; Puka of 13.70 years. These are the extremes. This difference of 4.45 years=5.71 x p.e. and this is thus statistically significant. This difference in variability may also be expected to qualify the means in certain cases. In a character in which the highest values are found at, let us say, the 35–39-year-old age locus, and we have 2 samples each with a mean age of 38, then the sample with the lowest value for σ may be expected to show the higher mean. This is another reason why we must allow a little more than the conventional amount of leeway in interpreting the statistical significance of differences between tribal and other samples.

AGE AND STRENGTH

147 *128 No single criterion can be found which expresses the changing health, maturity, and vigor of a man more than his muscular strength. Table 11 shows values for hand squeeze in

TABLE 11: AGE AND STRENGTH, IN POUNDS.

AGE	#	RANGE	MEAN P.E.	σ	V
20–24...	107	60–160	112.80 ± 1.11	17.10	15.20
25–29...	154	75–170	115.00 ± .93	17.10	14.86
30–34...	164	50–180	114.60 ± 1.00	19.00	16.61
35–39...	163	70–185	115.30 ± 1.07	20.15	17.42
40–44...	125	45–170	112.10 ± 1.16	19.25	17.16
45–49...	106	50–150	103.65 ± 1.36	20.85	20.15
50–54...	88	65–140	103.90 ± 1.17	16.25	15.64
55–59...	51	50–140	103.35 ± 1.65	17.45	16.83
60–64...	58	50–130	96.05 ± 1.46	16.55	17.20
65–69...	15	50–115	91.00 ± 2.65	15.20	16.82
70–74...	14	70–130	95.70 ± 3.02	16.70	17.46
75–89...	11	75–110	90.00 ± 2.34	11.50	12.78
65–89...	40	50–130	92.40 ± 1.62	15.05	16.30

147 *128 pounds for all age grades from 20–24 to 75–89 years; and also for 65–89 years pooled. Out of 78 possible comparisons, when we ignore the pooling, 44 reach 3 or more times p.e., and when we count 65 onward as pooled, the score is 31 out of 55. Eleven of these differences exceed 9.00 times p.e. Our mountaineers reach their peak of squeeze-power in their late 30's, decline slowly for half a decade, and then weaken more rapidly after 45. The combination of physiological changes which this curve reflects may be traced in the metrical and morphological characters which follow.

AGE AND SELECTED METRICAL CHARACTERS

141 *128 Table 12[1] presents the means for 7 selected metrical characters. Having neither time nor space to compute and present age grade means in all criteria, I selected some which have a special bearing on the problems of this study as well as general interest. The 12 youths probably born after 1910 are not numerous enough for full statistical treatment. Although they deviate from the trends shown by the

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[1] [see cat. 116, p. 73c -- Analyst]

141 *128 other age groups, this cannot be interpreted with any assurance. This is unfortunate, since many of the largest series in the European literature represent this age grade alone—measured on recruits.

Stature in our series changes very little with age (fig. 4).† Only 6 out of 55 differences between age grades reach 3.00 times p.e.; only one reaches 4.00 times p.e. This is barely significant. Judging by the trend of means alone, our mountaineers reach their peak of height at the same time that they are strongest, in their late 30's. The rises at both ends of the scale may represent selection, as discussed earlier. In any case there is no evidence that the mountain population was growing taller during the last third of the 19th and first fifth of the 20th centuries. From 1865 to 1929 most of the peoples of western Europe, and the Americans, were experiencing a steady growth increase. Whatever factors caused this in the west did not reach the mountains of northern Albania. This conclusion may be confirmed by a study of 17 pairs of brothers. The older was taller than the younger in 9 instances, the

† [see cat. 116, p. 74a -- Analyst]

8: Coon E-5 (1929-30; 46-48) 1950 EGl Albania EGl
Highland Ghegs

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TABLE 12: AGE GRADE MEANS FOR SELECTED METRICAL CHARACTERS.

Age	Birth Year	No.	Stature	Head Length	Head Breadth	Head Height	Bizygomatic	Cephalic Index
18-19	....1911 ca.	12	173.25	182.75	154.99	128.50	137.00	85.25
20-24	1908	99	169.73 ± .44	186.27 ± .50	156.24 ± .39	130.02 ± .42	140.60 ± .35	83.90 ± .32
25-29	1903	155	169.24 ± .34	185.63 ± .37	157.00 ± .35	128.57 ± .31	141.67 ± .28	84.71 ± .24
30-34	1898	166	169.79 ± .39	186.54 ± .36	157.86 ± .24	127.77 ± .24	142.33 ± .30	84.66 ± .20
35-39	1893	162	170.46 ± .35	186.22 ± .37	158.22 ± .29	128.19 ± .27	142.65 ± .27	85.02 ± .21
40-44	1888	129	170.14 ± .44	185.46 ± .47	159.03 ± .40	128.73 ± .36	142.85 ± .30	86.14 ± .28
45-49	1883	103	170.13 ± .48	186.90 ± .41	158.75 ± .40	128.74 ± .43	143.20 ± .37	84.87 ± .26
50-54	1878	88	169.01 ± .41	186.99 ± .53	157.99 ± .43	127.26 ± .27	143.09 ± .43	84.41 ± .31
55-59	1873	52	169.41 ± .55	185.54 ± .39	157.45 ± .61	126.64 ± .62	143.85 ± .52	85.04 ± .42
60-64	1868	56	167.34 ± .57	185.20 ± .51	157.38 ± .49	127.77 ± .48	142.70 ± .45	85.23 ± .33
65 +	1865	41	170.18 ± .62	187.61 ± .73	157.22 ± .56	128.78 ± .66	143.10 ± .36	83.28 ± .44

Age	Birth Year	No.	Total Face Height
18-19	....1911 ca.	12	122.40
20-24	1908	98	121.90 ± .49
25-29	1903	153	121.87 ± .34
30-34	1898	163	123.93 ± .25
35-39	1893	151	124.05 ± .36
40-44	1888	111	123.99 ± .44
45-49	1883	85	124.45 ± .48
50-54	1878	61	124.85 ± .49
55-59	1873	30	125.16 ± .72
60-64	1868	37	125.92 ± .68
65 +	1865	16	126.69 ± 1.35

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younger taller than the older in 8. The mean stature of the older was 171.72 centimeters, of the younger 171.47 centimeters; the mean age of the older, 41 years, of the younger, 33 years. In America and elsewhere where growth increases are in process, the younger brothers are taller than the older ones.[1] This study of stature means several things: differences between age groups are so slight that our intertribal stature comparisons need no age correction; we can compare our Ghegs with younger series, since the men over 50 will balance those in their 30's and 40's; since size changes comparable to those seen in certain other countries are not going on in the principal sagittal dimension of the organism, the same is probably true of the organism as a whole.

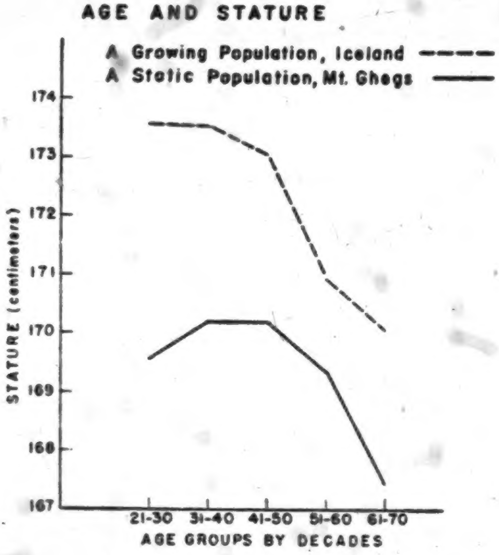

FIG. 4. Age and stature.[2]

The head length shows even less variation with age than stature; in fact not a single difference betwen the means of the 11 age grades from 20 years old onward is statistically significant. Furthermore, no clear if minor trends are shown in the succession of means, except possibly for the dip between 55 and 64 years.

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[1] Bowles, 1932.

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In head breadth, on the contrary, the means increase consistently and regularly to the 40-44-year age group, and then decline with the same regularity. This sequence in itself has meaning, enhanced by the fact that 6 of the differences between age group means are statistically significant. The cephalic index mirrors head breadth, with the same succession, and with 9 differences of 3.00 or more times p.e., of which 3 exceed 4.00 and one exceeds 5.00. This combination is unusual. One expects the head length to grow with age and then gradually decline as the soft parts thin out; here the burden of age change is borne by the breadth. The change of 2 index points in the cephalic index which accompanies this phenomenon cannot be responsible for the intertribal differences in that character, since the tribes which one would expect to be the most brachycephalic on a basis of age variation are the least, and vice versa.

In the head height, 6 differences are statistically significant, out of the usual 55. Two of these are over 4.00, one over 5.00. The table shows, however, no trend; higher and lower vaults alternate at random. If any factor other than chance is at play here, present evidence is not adequate to unearth it.

The face behaves differently with age (fig. 13) from the brain case. This is to be expected from what we already know of growth in man elsewhere. The bizygomatic diameter keeps on increasing to the late 40's, when it levels off; 11 out of 55 differences are significant; 6 are over 4.00, and 2 over 5.00 times p.e. The total face height grows continuously throughout life; the means never level off. Sixteen differences are significant, with 8 over 4.00, and one over 5.00 times p.e. This means that our Mountain Ghegs may owe part of their greater face length, and breadth, over other European series to their more advanced age. Without question this applies in even greater measure to the nose diameters and nasal index, which were not seriated here since they do not vary intertribally. The face dimensions do vary intertribally, and thus require further consideration.

[1] [see cat. 116, p. 113
-- Analyst]

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[1] Icelandic material from Hannesson, 1925.

AGE AND CERTAIN SOFT PARTS OF THE FACE

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*128 A number of regressions have been made between age and some of the soft parts of the face, not all of which need be given in detail. On table 13,[1] only those characters in which age changes play a part of interest to us here

[1] [See cat. 116, p. 75 c -- Analyst]

142 +128 have been plotted. Three different techniques of comparison are used, of which one, being new, is explained. The integument of the lips grows steadily although not greatly thicker with age until the 50's, after which its behavior is variable, which may be explained on the basis of tooth loss; when teeth are gone it is harder to observe this character than when they

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TABLE 13: MEAN AGES, IN YEARS.

	ABS.		SSM		SM		+		++, +++	
	No.	MEAN	No.	MEAN	No.	MEAN	No.	MEAN	No.	MEAN
Lips, integ. thick					22	(46.18)	908	38.69	133	43.54
Lips, membr. thick	91	51.29	19	(48.84)	455	42.00	467	35.52	31	36.04
Nasal tip thick			31	38.13	371	38.50	544	39.61	117	42.05
Ear lobe, develop.					434	36.66	568	40.14	61	49.10

Nasal Wings:	No.	MEAN
Compressed	383	38.75
Medium	621	39.98
Flaring	61	37.82

Nasal Profile:	No.	MEAN
Concave	69	36.67 ± .96
Straight	414	37.83 ± .35
Convex	569	40.89 ± .36
Concavo-convex	11	(38.82)

Nasal Tip, Elevation-Depression	No.	MEAN
Elevation + +	36	36.45
" +	332	37.68
" sm	230	38.39
Depression sm	173	40.32
" +	256	40.46
" + +	36	42.97

MEAN VALUES OF FOUR OBSERVATIONS*

					Nasal Profile, by Percentages							
					CONCAVE		STRAIGHT		CONVEX		CONCAVO-CONVEX	
AGE	LIPS, INTEG.	LIPS, MEMBR.	NASAL TIP THICK.	EAR LOBE DEV.	#	%	#	%	#	%	#	%
1[illegible]-20	50.0	43.8	33.3	35.4	2	16.7	6	50.0	4	33.3		
21-24	50.2	42.2	44.1	37.4	9	9.1	51	51.5	38	38.4	1	9.1
25-29	51.4	40.7	41.1	37.9	13	8.4	59	38.1	81	52.3	2	18.2
30-34	52.3	40.1	40.5	37.4	9	5.4	68	41.0	86	51.8	3	27.3
35-39	51.8	36.0	41.8	40.1	10	6.2	66	40.7	85	52.5	1	9.1
40-44	54.8	33.0	44.0	42.6	6	4.6	50	38.8	72	55.8	1	9.1
45-49	54.4	32.1	46.2	43.2	9	8.7	36	35.0	57	55.3	1	9.1
50-54	55.1	31.2	44.9	43.5	5	5.7	39	44.3	44	50.0		
55-59	51.0	26.4	45.7	45.9	3	5.8	13	25.0	36	69.2		
60-64	54.5	24.3	44.5	50.0	3	5.4	15	26.8	37	66.1	1	9.1
65 +	50.6	18.0	42.4	49.7			11	26.8	29	70.7	1	9.1

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* This table represents an attempt to render subjective observations mutually comparable. The means listed above have been computed as follows: Absent=0. ssm=12.5. sm=25. + =50. ++ =75.+++ =87.5. Multiply the absents x 0, the ssm's x 12.5, the sm's x 50, etc., and divide the sum by N. Result is the mean as given above. This method, although mathematically dubious, is nevertheless a convenience, for it is easier to compare single figures than galaxies of percentages; and in this way progressive trends may be discovered.

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are present. Conversely, the lip membrane, as far as could be observed, thins with age. The relationships between this feature and various dental characters, such as occlusion, will be discussed in the next chapter. For the present it is enough to state that part at least of the George Washington look of the Mountain Gheg lips is due to age. The ear lobe also grows steadily, slowly until the early 50's, then faster.

The nasal wings change little; the tip, however, thickens gradually to the late 40's, and then thins out slightly; these changes are very slight and significant only in their directional constancy. The position of the tip, however, changes steadily and significantly with age; the high frequency of depressed tips in our series is partly a reflection of it.

Aside from the shape of the back of the head, the most distinctive character of Dinarics is the nasal profile, the high frequency of hawk beaks being distinctive. In our percentile series a frequency of 50 per cent or over for convex

142 *128 profiles is reached only by the late 20's; it remains fairly constant until the late 50's, and then increases notably, probably as the soft parts of the nose thin out and the tip pulls downward. The age mean differences between concave and convex and straight and convex are significant; so are the percentile differences between the 20–24–year–old group and the 3 oldest categories. If one were to measure a series of 20-year-old Ghegs, one would probably find straight noses in the majority, with concave appearing perhaps as often as convex. The convex nose, so distinctively Dinaric, is in part a feature of age. So is the long face, so are the thin lips. The "typical" Dinaric is a man past middle age.

AGE AND PILOSITY

Table 14[1] and figure 5[2] show the changes in pilosity that occur in our series with advancing age. Some 13 per cent are bald to some degree. As table 14[3] shows, this rises steadily with age. None of the youngest age group was

[1] [see cat.116, p.76c--Analyst]

[2] [see Cat.116, p.77a--Analyst]

[3] [see cat.116, p.76c--Analyst]

8: Coon E-5 (1929-30; 46-48) 1950 EGl Albania EGl
Highland Ghegs

TABLE 14: AGE AND HAIR QUANTITY.

Means of Criteria*

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AGE	No.	BALDNESS	HEAD	No.	MUSTACHE	CHEEKS	JAW	ARMS & LEGS	CHEST
18–20......	12	0	54.17	12	41.67	18.75	22.50	27.50	8.33
21–24......	99	1.77	50.51	99	39.90	28.66	30.93	34.47	17.05
25–29......	153	3.03	49.68	155	42.55	37.66	40.41	40.73	27.10
30–34......	162	4.27	50.62	166	48.27	45.63	47.97	44.58	34.86
35–39......	159	5.82	48.59	162	56.32	50.39	53.24	47.53	36.65
40–44......	129	9.42	48.05	129	57.75	53.49	54.55	49.71	41.96
45–49......	99	12.55	47.19	103	58.50	52.31	55.34	49.51	43.08
50–54......	83	13.56	46.48	88	57.95	52.41	56.25	51.99	45.00
55–59......	51	17.15	41.67	52	58.65	55.39	56.73	48.56	40.62
60–64......	56	17.62	40.85	56	58.48	55.80	57.14	49.55	48.21
65 + ...	41	18.62	42.07	41	60.06	57.32	58.23	46.34	61.89

Age Means

	ABS.		SSM		SM		+		++	
	No.	MEAN	No.	MEAN	No.	MEAN	No.	MEAN	No.	MEAN
Baldness	803	36.79	22	47.68	128	48.21	71	49.03	19	50.18
Head Hair Quant.....					143	48.70	842	37.88	58	37.43
Mustache ...			16	23.87	81	26.57	727	39.10	239	45.59
Cheek	50	28.10	52	32.38	189	39.12	54[illegible]	39.95	232	45.71
Jaw	21	24.68	28	27.00	183	32.87	593	40.05	238	45.80
Arms and Legs			16	32.00	280	34.27	636	40.53	131	45.93
Chest	249	32.74	14	41.29	243	38.44	377	41.48	169	46.20

*See footnote to table 13.

(*Note:* Chest +++: 11 49.27)

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bald; 22 per cent of the oldest were. The thickness of the head hair, where any remained, became gradually reduced from the early 30's onward, but this change was a minor one.

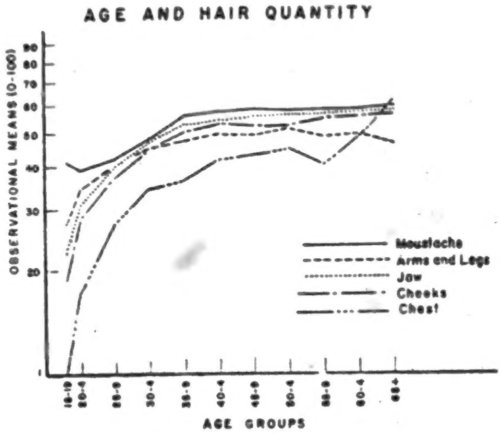

Fig. 5. Age and hair.

Of the face hair, the mustache grew out first, as expected, and changed relatively little; here age is a minor factor. The hairiness of the cheeks and jaw increased to the ratio of 3 to 1 and 2 to 1. Of the body hair, that of

142 *128 the arms and legs increases in the same fashion as cheeks and jaws until the mid-30's, and then remains constant. The chest hair increases most of all kinds of hair observed.

With such a population, and this applies for most if not all "white" peoples, it is useless to compare 20-year-olds, such as are commonly recorded in army statistics, with a mature sample like this. But samples with mean ages between 35 and 60 years old would be comparable. This means that our tribal samples, despite their significant age variations, can still be compared with each other in the 7 criteria of hairiness used in this study.

AGE AND GRAYING

Table 15[1] and figure 6[2] show other age changes in the hair—the progressive loss of pigment with age, known as graying. The head hair begins to gray at an earlier age than that of the mustache, which overtakes head hair in the late 50's. Whereas hair quantity reaches its adult stage in the 30's and then levels off, graying progresses in a different fashion. From the early 30's until the late 40's it follows one rate of progression which shows as a parabola on a straight graph and a straight

[1] [See cat. 116, p. 77c-78a--Analyst]

[2] [See cat. 116, p. 78b--Analyst]

8: Coon E-5 (1929-30; 46-48) 1950 EGl Albania EGl
Highland Ghegs

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TABLE 15: AGE AND GRAYING.

	Degree of Grayness by Age Groups				Per cent Remaining Totally Ungrayed	
	HEAD		MUSTACHE			
AGE	No.	MEAN*	No.	MEAN	HEAD	MUSTACHE
18–20	12	0	12	0	100.00	100.00
21–24	99	.25	99	0	98.99	100.00
25–29	155	3.67	155	.48	89.03	98.71
30–34	166	2.95	166	.30	90.36	99.40
35–39	161	7.38	161	2.17	75.78	91.93
40–44	130	16.44	129	9.50	59.23	72.87
45–49	103	29.00	103	22.32	36.89	43.69
50–54	88	35.23	88	31.68	25.00	37.50
55–59	52	41.82	52	37.02	21.15	28.85
60–64	56	55.12	65	57.14	8.93	3.57
65 +	41	69.82	41	73.50	2.44	0

	Mean Ages of Degrees of Graying			
	HEAD		MUSTACHE	
	#	AGE	#	AGE
Abs	674	33.49	766	33.98
ssm	26	42.67	4	(47.00)
sm	119	44.22	83	46.52
+	140	47.89	127	53.38
++	77	56.02	64	59.30
+++	17	60.82	11	(65.18)
White	9	63.67	7	(64.86)

	Degree of Grayness All Ages		Mean Ages of Hair Color Groups		
	#	MEAN*	#	MEAN	AGE
Black	420	24.84	420	43.39	.40
Dark brown	473	8.53	473	35.45	.29
Reddish-brown	16	13.42	16	(40.12)	
Light brown	89	4.64	89	35.42	
Blond	24	6.25	24	(37.42)	

*By method explained in footnote to table 13.

8: Coon E-5 (1929-30; 46-48) 1950 EGl Albania EGl
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Table 15 (*continued*)

Hair Color and Age Grades

Age	Total	Black		Dr. Br.		Red Br.		Lt. Br.		Blond		Lt. Br. & Blond		Unknown
		#	%	#	%	#	%	#	%	#	%	%	#	%
18–20……	12	4	33.33	6	50.00	0		2	16.67	0		16.67	0	
21–24……	99	19	19.19	64	64.64	1	1.01	9	9.09	6	6.06	15.15	0	
25–29……	154	41	26.62	88	57.14	3	1.95	18	11.69	4	2.60	14.29	0	
30–34……	166	48	28.91	96	57.83	0		19	11.44	3	1.81	13.25	0	
35–39……	161	57	35.40	85	52.80	4	2.49	13	8.10	2	1.25	9.35	0	
40–44……	129	56	43.41	47	36.43	3	2.33	16	12.40	5	3.88	16.28	2	1.55
45–49……	103	56	54.37	34	33.01	2	1.94	5	4.85	1	.97	5.82	4	3.88
50–54……	88	53	60.23	24	27.27	2	2.27	3	3.41	1	1.14	4.55	5	5.68
55–59……	50	35	70.00	9	18.00	0		1	2.00	0		2.00	5	10.00
60–64……	54	33	61.11	11	20.37	0		1	1.85	1	1.85	3.70	8	14.81
65 + ……	36	18	50.00	9	25.00	1	2.78	3	8.33	1	2.78	11.11	4	10.81

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line on a semi-log grid; from the late 40's onward the rate changes, and this again takes the form of a single logarithmic function. It would appear from this that at least 2 physiological factors are responsible for this phe-

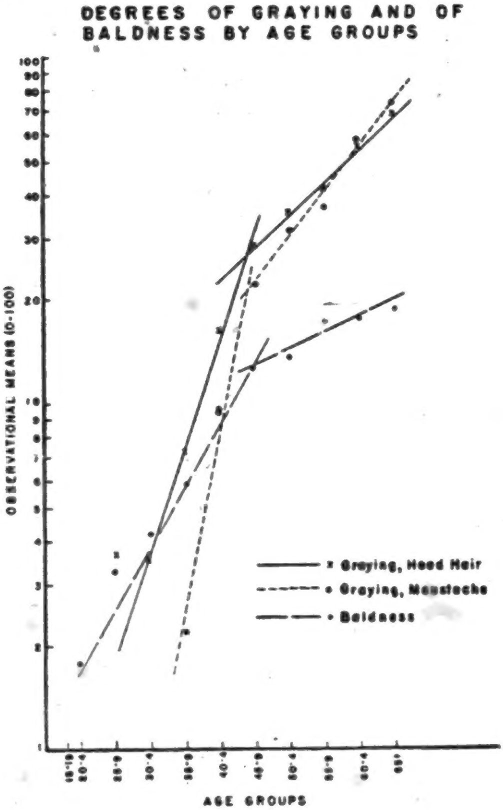

Fig. 6. Age and graying.

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nomenon, and one is set in motion later than the other. When baldness is taken over from the preceding section and plotted on the same chart, it breaks at exactly the same age as graying at the 2 anatomical loci studied. This is the same spot on the age chart at which strength, as shown by the dynamometer squeeze, falls off sharply. Old age, among the Mountain Ghegs, begins to raise its hoary head in the mid-40's.

AGE AND COLOR CHANGES

In all but 28 (2.6%) cases, it was possible to find enough pigmented hairs with the gray to make a notation for hair color. As table 15† also shows, black hair was more often tied to [illegible] higher degrees of graying than any other kind. Black and reddish-brown hair showed much more grayness than the 3 other color categories, all lighter, which tend to form a group. Is this because the black-haired men gray younger than the brown and light-haired men, or because some of them get darker haired as they grow older? While we can never answer this with complete assurance until we have studied chronological changes in the same men, the present evidence favors the second conclusion. Dark brown-haired men are 8 years younger, on the mean, than black-haired men, and this difference reached over 16 times its probable error. Table 15 shows how the percentage of black-haired men increases in each age grade from the early 20's through the late 50's; at that time something happens to reduce the ratio. On the other hand, dark brown-haired men are 3 times as numerous as black-haired in youth; they grow

† [See cat. 116, p. 77c-78a
-- Analyst]

142 *128 scarcer with age, until at about age 40 the 2 color brackets are equal, and at age 60 the tables have turned; the black-haired men outnumber the dark brown-haired by over 3 to one. Light brown- and blond-haired men, in general, do not suffer so drastic a reduction. At age 60 both they and the dark brown-haired contingent become more numerous. By age 60, most of the men are already quite gray; it looks as if in some cases the darker hair colors began to bleach out at this time. If we were to describe our series on the basis of a sample of recruits at age 20, clearly then one would have to say that the Mountain Ghegs were predominantly brown haired, with blonds and black-haired individuals in equal-sized minor-

142 ities. At age 45, however, black-haired men
*128 would be in the majority. It is probably just as true of most other European populations that hair color depends on the age of the sample. Although eye color shows a number of differences in relation to age, none of these are comparable in magnitude to those which we have just discussed, and they do not affect the position of the sample; a description for any age over 20 will give a fair picture of this character for the adult male population as a whole.

128 *AGE AND INTERTRIBAL DIFFERENCES*

141 So far in this chapter most of the studies of
age variations have served to show the position
142 of the series as a whole, and to render it comparable with other series. Some of the exercises have had a bearing on intertribal differences. For example, it is clear that the high stature of the people north of the Drin has nothing to do with age, in comparison with their neighbors to the south, and that the same is true of local variations in the dimensions of

142 the head. In several other characters which
141 were seen to be critical points of intertribal
difference, age cannot be as easily eliminated.
*128 We have seen that baldness, hair color, and
total face height vary considerably with age,
and must explore the effect of these changes
on our tribal samples.

Two tribes above all others set themselves apart: Dukagin and Has. Between them they monopolize the peculiarities which suggest that the Highland Ghegs are not a homogeneous group of people. These peculiarities, as tracked down in chapter 10,[1] "The Mountain Gheg Phenotype," are the biacromial diameter, the total face height, the form of the chin, the protrusion of the buttocks, the

[1] [See cat. 116, pp. 58b-70b -- Analyst]

141 presence or absence of baldness, the lateral
142 extension of the eyebrows, and the color of
*128 the head hair. Table 16[1] shows constants for these characters in Dukagin and Has. In each tribe I have segregated the 30–39-year-olds and made separate computations. By equalizing the age distribution we may hope to find out whether the peculiarities are linked to age, or not.

They are not. The 30–39-year-olds of Dukagin are just as much broader shouldered than their age mates of Has, as the total sample. The Has men have longer faces than the Dukagin men, at any age. The Dukagin men have more bilateral chins, fewer lean buttocks, less baldness, more bilateral extension of the eyebrows, and more brown hair, than the Has men, age for age.

These differences are real ones. They are just as great in one representative age group as in the total sample. Has and Dukagin are local populations which differ in these respects from the total series and from each other.

[1] [see cat. 116, p. 71c .. An [illegible]]

TABLE 16: AGE CONTROLS IN CRITICAL CHARACTERS.

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	Has			Dukagin	
No.	(28)		(114)	(45)	(106)
Age	30-39		Total	30-39	Total
Biacromial	38.39	cm.	38.30	40.49	40.37
Total face ht.	125.86	mm.	126.30	123.44	124.15
Chins, bilateral	17.86%		19.30%	35.51%	38.68%
Buttocks, sm	32.14%		42.11%	2.22%	5.66%
Baldness, present	28.57%		46.00%	15.55%	20.19%
Eyebrows, lat. ext. abs. & sm.	53.57%		57.90%	11.11%	8.49%
Hair color					
Black	60.71%		61.46%	17.78%	20.75%
Brown	32.14%		22.92%	68.89%	66.04%
Other	7.14%		15.62%	13.33%	13.21%

BITE

THE MECHANICS OF DENTAL OCCLUSION

000 HAVING described the Gheg phenotype, and having witnessed some of the changes wrought in it by the passage of the individual from youth to old age, we move on to study the effect of *function* on one part of the human organism, the entire masticatory apparatus, including teeth, jaws, and the zygomatic arches. Most people believe that muscles can be developed through exercise; this belief supports gymnasia and athletic programs. Muscular development leaves its mark on the bones, which despite their hardness are relatively plastic. Among the most active muscles in the human body are those which operate the lower jaw—the temporals, masseters, and external and internal pterygoids above, and the platysma below. These muscles are exercised not only in chewing and swallowing, but also in talking. Their strength is surprisingly great; a device used by dentists to measure bite-force records 35 pounds pressure per bite as an ordinary chew, American style.[1] The effective strength which can be exerted depends on a number of factors, including the actual power of the several muscles, the details of the leverage, and the number, position, size, and condition of the teeth. These factors vary with race, sex, age, health, and use.

According to the prevailing theory, a normal human being, after cutting his baby teeth, starts out with a slight overbite. His upper incisors lap slightly over the business edge of his lower incisors. His canines and bicuspids more or less mesh. When he cuts his permanent teeth, this type of occlusion continues. As he grows older, any one of 3 things may happen: (a) the slight overbite continues as his normal adult form; (b) with heavy chewing he forms the habit of moving his lower jaw forward, so that the incisors meet edge-to-edge; (c) with very little chewing he slips his lower jaw backward, and his upper canines and incisors overlap the lower canines and incisors completely. This is what is called a

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[1] Baker, 1922, vol. 8, pp. 3–24.

000 marked overbite, a condition which parents pay hundreds of dollars to have corrected in their children.

One important factor in this choice of bites is the nature of the articulation of the condyle of the lower jaw; the joint is a very complex one and permits a large amount of motion forward, backward, and sidewise. Thus whichever way you choose to bite, the versatile mandibular fossa makes accommodations, and the teeth take the required positions in the jaws. The act of masticating hundreds of pounds of meat, cereals, and vegetables throughout a person's life must affect not only the foods consumed, but also the teeth. Despite the glassy hardness of enamel, it wears down. The cusps, which serve as the blades of the teeth, or which correspond to the grooves in a millstone, wear flat, under certain conditions. One of these conditions is the consumption of bread stuffs ground in stone mills, and this varies with the kind of stone. If and when the cusps have worn flat, if the bite has become edge-to-edge, then the dental surfaces of the 2 jaws may both be smooth, and a rotary grinding becomes possible. Chewing is never simply up and down; it always includes some side-to-side and fore-and-aft movement, but until the point mentioned above is reached such movements are always limited by the cusps or by the overlap of the front teeth.

It is generally believed that in a mature adult the edge-to-edge bite reflects heavier chewing, all else equal, than the "normal" overbite. The marked overbite is supposed to represent the paucity of mastication associated with eating highly processed foods, and is as characteristic of imperial Roman jaws as of ours. In that it is a byproduct of a technically high civilization it is sometimes called a degeneration. Still another type of bite occurs, the underbite, in which the lower incisors protrude farther forward than the uppers. It is the so-called "bulldog" bite, an anomaly in any time, place, or population. In our Albanian series we recorded the four types of bite described above.

BITE AND AGE

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Table 17[1] shows the relation between bite type and age. The men whose bite was known to be edge-to-edge were nearly 5 years older than their slightly-over kinsmen, and this difference is significant by 9.63 times its own probable error. Disregarding the youngest age bracket as too small a sample, we see that at age 20–24 the percentage of overbites outnumbers that of edge-to-edge occlusions nearly 3 to 1, that the 2 become equal at about age 35, after which the earlier proportions are reversed in the early 50's. The changes in ratio which begin at that age and keep on to senility are a function of the rise in proportion of edentulous men, whose earlier type of bite could not be determined. They are recorded as "un-

[1] [see cat. 116, p. 81c -- Analyst]

142 known." Incisors that have been worn enough
128 to breach the pulp cavity are more likely to drop out than those that have not, and hence it is reasonable to suppose that most of the "unknowns" of the later age grades had had edge-to-edge bites, but we cannot be sure. It is also reasonable, but uncertain, to suppose that men who have retained overbites until age 52 will do so for the rest of their lives. By adding the "unknowns" to the edge-to-edge category on table 17 we obtain an expression of this hypothetical progression.

*[see cat. 116, p. 81c--Analyst]

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TABLE 17: BITE AND AGE.

MEAN AGES IN YEARS

	No.	Mean
Under	14	35.55 years
Edge-to-edge	521	41.53 ± .31
Slightly over	480	36.78 ± .35
Marked-over	10	38.00

PERCENTAGES OF BITE TYPES IN AGE GROUPS

Age	Under		Edge-Edge		Slightly-over		Marked-Over		Unknown		No.
18–19	0		6	50.00	5	41.67	1	8.33	0		12
20–24	3	3.03	26	26.26	69	69.69	1	1.01	0		99
25–29	0		63	40.65	91	58.71	1	.65	0		155
30–34	5	3.01	74	44.58	85	51.20	2	1.20	0		166
35–39	2	1.23	84	51.53	75	46.01	1	.61	1	.61	163
40–44	1	.78	66	51.16	57	44.19	1	.78	4	3.10	129
45–49	1	.97	65	63.11	35	33.98	0		2	1.94	103
50–54	1	1.14	59	67.05	23	26.14	2	2.27	3	3.41	88
55–59	1	1.96	29	56.86	14	27.45	0		7	13.73	51
60–64	0		32	57.14	14	25.00	1	1.79	9	16.07	56
65 +	0		17	41.46	12	29.27	0		12	29.27	41
?	0		3	75.00	0		0		1	25.00	4
Total	14	1.31	524	49.11	480	44.99	10	.94	39	3.66	1067

Marked overbites are so infrequent that they are statistically almost negligible. They are scattered throughout the age grades in such a way that one cannot say that they are increasing or decreasing, and this accords with what we know of Mountain Gheg eating habits. Underbites are no more or less frequent than expected.

Any notion that types of occlusion are hereditary must be destroyed by this evidence. No genetic infiltration strong enough to affect half the population can have penetrated Ghegnia during the lifetime of our oldest subjects. Occlusion is functional, but is all of the change shown in this series a normal age shift from over to edge-to-edge, or can some of it be due to changes in foodstuffs and eating habits, such as the introduction of sugar, and possibly the

142 transportation of soft bread from town bakeries to the villages? I leave the answer to this
*128 question to the experts in the dental field.

BITE AND GEOGRAPHY

162 Table 18* gives the tribal distribution of bite
142 types. In this feature the tribes vary greatly,
*128 and some of the differences are highly significant, as for example that between Mirdita and Luma in edge-to-edge, which runs to 6.48 times p.e. Mirdita is by far strongest in edge-to-edge, which seems in general to go with the

*[See unit 116, p.82a--Analyst]

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TABLE 18: BITE.

TRIBAL DISTRIBUTION OF TYPES

	TOTAL	UNDER #	UNDER %	EDGE-TO-EDGE #	EDGE-TO-EDGE %	SLIGHTLY OVER #	SLIGHTLY OVER %	MARKED-OVER #	MARKED-OVER %	UNKNOWN #	UNKNOWN %
Total Series	1067	14		524		480		10		39	
MeM	105	2	1.90	56	53.33	43	40.95	0		4	3.81
Duk	106	0		60	56.60	46	43.40	0		0	
MeJ	104	2	1.92	35	33.65	67	64.42	0		0	
Has	114	3	2.63	73	64.04	30	26.32	1	.88	7	6.14
Lum	109	1	.92	31	28.44	68	62.39	4	3.67	5	4.59
Puk	102	4	3.92	37	36.27	59	57.84	1	.98	1	.98
Mir	101	2	1.98	70	69.31	19	18.81	2	1.98	8	7.92
Zad	105	0		49	46.67	51	48.57	0		5	4.76
Mat	104	0		51	49.04	51	49.04	0		2	1.92
Dib	108	0		58	53.70	42	38.89	2	1.85	6	5.56

BITE AND RELIGION

	CATHOLIC E-E	CATHOLIC SL.-O.	MOSLEM E-E	MOSLEM SL.-O.	BOTH OTHERS		PROPORTIONS OF E.-E.–S.-O. CATH.	PROPORTIONS OF E.-E.–S.-O. MOSLEM
MeM	27	23	29	20	6		54	59
Duk	60	46	0	0	0		56	—
MeJ	9	7	26	60	1		56	70
Has	8	3	65	27	11		67	71
Lum	0	0	31	68	10		—	31
Puk	11	24	26	25	6		44	52
Mir	70	19	0	0	12		79	—
Zad	45	42	4	9	5		52	31
Mat	4	6	47	45	2		40	51
Dib	0	0	58	42	8		—	58
Intertr.	2	2	7	7	2		50	50
Total	236	172	293	303	63	1067	58	49

162 most remote geographical fastnesses, except for
142 Has. With the same exception, the north-
128 eastern tribes are highest in slight overbites.
One might at first suppose that the Catholics
were the edge-to-edge people, but in 5 out of
the 6 tribes where both faiths are followed,
the Moslems have a higher edge-to-edge ratio.
In the sixth, Malsia e Jakovës, the Catholics

8:Coon E-5 (1929-30;46-48)1950 EG1 Albania EG1
Highland Ghegs

162 form a special regional population, that of
142 Nikaj and Merturi, just over the divide from
*128 Shoshi and Shala. Bite cannot be shown to have anything to do with ritual food taboos at all. Nor should one expect this, for the chief difference in diet lies in the species of animal eaten, while the food that takes the most chewing, bread, is the same for both in any given region.

162 What this distribution seems to show more
142 than anything else is that slight overbites tend
*128 to favor the big eastern market towns and the
center of the Roman road. Puka lies at the
[256] middle of this road, and Puka has a commercial
bakery. Luma has several at Kukës, and others
do business at Prizren and Peshkopia. These
commercial bakeries turn out a softer product

162 than home ovens, at least in my experience.

142 Why then, has Has one of the highest ratios
*128 of edge-to-edge bite, when the very men measured at Has were drawn from villages of hereditary commercial bakers? The answer to this lies in the age distribution. Twenty-eight men of the Has sample fell into age group 30–39. Of these, 13 had edge-to-edge bites, 14 slightly-over, and one marked-over. The

142 edge-to-edge ratio for this age grade is 48. In 162 Luma, which stands at the other end of the 4128 scale in bite form, 25 men in the same age grade had 11 edge-to-edge, 13 slightly-over, and one under. This gives a ratio of 46. If one counts marked-over with slightly-over and under with edge-to-edge, the ratios are reversed. The bakers were simply older men.

Much more research needs to be done if we are to explain the incidences of kinds of occlusion among Mountain Ghegs. All this report can possibly accomplish is to serve as a reconnaisance for specialists.

BITE AND FACE HEIGHTS

OCD We have seen in chapter 11, "Age," page 74,[1] that unlike most other parts of the body, the face keeps on growing throughout life. In old age, however, this growth is often offset by the deterioration and loss of the teeth. As the teeth wear down and drop out, the dental borders of both maxillae and mandible shrink through absorption, and the chin and nose approach each other. These compensatory processes, face growth and dental attrition, do not necessarily move apace. Among some individuals the teeth remain sound until late in life; in others they deteriorate early. These differences thus affect not only means but also dispersions and measures of variability, including the probable error. In a series which includes a large percentage of men who have reached middle age, or in one in which poor teeth are common at any age, some method must be found to eliminate this source of error. 125 Being aware of this problem before leaving for Albania, I included in the measurement blank the observations *face shortening due to wear*, and *face shortening due to loss and absorption.* It was easier to observe dental condition with this problem in mind than to make general

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[1] [See cat. 116, p. 746 -- Analyst]

125 observations and then try to estimate the effect on face height later.

4,128 142 Table 19[1] tells us the rest of the story. Shortening from wear went largely with the edge-to-edge type of bite, while loss and absorption were more characteristic of men who had had overbites, and whose teeth were less worn, in the instances where enough teeth were left to tell. In only 5 instances was it possible to attribute the shortening to both. Shortening due to wear set in 10 years earlier than that due to loss and absorption. The total face height means of the men who had suffered shortening from wear were significantly smaller than the total mean, in the + and ++ categories; the same was true of those subject to loss and absorption, in the ++ category only. In the case of the upper face height means, it was the men who had undergone loss and absorption who suffered the greater reduction, significant in both + and ++ categories. On the basis of these figures it seemed wiser to eliminate from the seriations of total face height, upper face height, and the dependent indices, the 164 men recorded as + or ++ in either loss category. With this correction the seriations given on table 4[2] were computed. The rejects came mostly from the older age grades, and no more than 22 per cent were removed from any one tribe.

One other question remains to be explored: whether, when wear, loss, and absorption are eliminated, the type of occlusion affects face heights. One might suppose that if 2 men had identical facial skeletons and identical teeth, and one man had an overbite while the other's teeth met edge-to-edge, the latter would have the longer face. As the last part of table 19 shows, this is not the case. Occlusion has no qualifying effect whatever on face lengths, except through wear, loss, and absorption.

[1] [see cat. 116, pp. 83c-84.. Analyst]

[2] [see cat. 116, pp. 54f-54g.. Analyst]

8: Coon E-5 (1929-30; 46-48) 1950 **EGl Albania EGl**
Highland Ghegs

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TABLE 19: BITE, AGE, AND FACE SHORTENING.

FACE SHORTENING, FREQUENCIES

Shortening, if any, due to:	abs.	ssm	sm	+	++	+++	Total	Grand Total
Wear	808	4	162	66	21	1	(254)	1062
Loss	1006	1	4	25	23	3	(56)	1062
Both				1	3		(5)	5
				Loss 1 Wear				
(Neither) ..	(752)						(752)	
Total	923* kept				164 removed			1067

(*Of 923 left, 921 have face heights.)

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+128

TABLE 19 (*continued*)

AGE

	No.	MEAN (YRS.)	X P.E. FROM ABS.-ABS.
No wear, no loss......	750	36.26 ± .28	
Abs.-Abs.			
Wear: ssm & sm......	161	43.24 ± .60	10.58
+	67	48.08 ± 1.29	8.95
++, +++	25	53.50 ± 1.12	15.00
Loss: ssm, sm, + ...	31	53.29 ± 1.16	12.00
++, +++	29	55.28 ± 1.00	18.33

FACE LENGTHS AND FACE SHORTENING ON THE BASES OF (A) WEAR, AND (B) LOSS AND ABSORPTION

TOTAL FACE HEIGHT

	WEAR					LOSS & ABSORPTION				
	No.	MEAN	σ	Δ	X P.E.	No.	MEAN	σ	Δ	X P.E.
Total	1065	123.25 ± .14	6.75	——	——	1065	123.25 ± .14	6.75	——	——
sm	163	122.95 ± .25	5.35	[illegible] ± .36	.84	4	128.00	——	——	——
+	67	121.55 ± .63	7.60	1.70 ± .55	3.09	27	122.35 ± .29	2.20	.90 ± .88	1.03
++	25	120.80 ± .76	5.65	4.15 ± .69	6.02	26	117.40 ± .81	6.00	5.85 ± .89	5.75

UPPER FACE HEIGHT

	WEAR					LOSS & ABSORPTION				
	No.	MEAN	σ	Δ	X P.E.	No.	MEAN	σ	Δ	X P.E.
Total	1065	73.25 ± .11	5.20	——	——	1065	73.25 ± .11	5.20	——	——
sm	162	73.35 ± .27	5.05	.10 ± .28	.36	4	77.00	——	——	——
+	67	72.05 ± .47	5.75	1.20 ± .43	2.79	27	70.70 ± .72	5.55	2.55 ± .67	3.81
++	25	72.60 ± .69	5.15	.65 ± .70	.93	26	69.10 ± .73	5.55	4.15 ± .69	6.02

DENTAL REJECTS

AGE	No.	% OF WHOLE	TRIBE	No.	% OF WHOLE
18–19........	0	0	MeM	23	21.9
20–24........	1	1.1	Duk	5	4.7
25–29........	2	1.3	MeJ	9	8.7
30–34........	3	1.8	Has	23	20.2
35–39........	11	6.8	Lum	10	9.2
40–44........	18	14.0	Puk	11	10.8
45–49........	18	17.5	Mir	22	21.8
50–54........	27	30.7	Zad	8	7.5
55–59........	22	42.3	Mat	11	10.6
60–64........	19	33.9	Dib	23	21.3
65	25	61.0	Intertr.	3	2.8

FACE HEIGHTS AND BITE TYPE
Means of the Corrected Series

	EDGE-TO-EDGE		SLIGHTLY-OVER	
	No.	MEAN	No.	MEAN
Total face height......	430	123.40 ± .21	461	123.95 ± .20
Upper face height	430	73.60 ± .16	461	73.50 ± .16

8;Coon E-5 (1929-30;46-48)1950 EG1 Albania EG1
Highland Ghegs

BITE AND FACE BREADTHS, WITH RELATED CHARACTERS

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+128 It is possible, however, that factors in occlusion may be concerned with face breadths. A progressive development of the temporals, masseters, and pterygoids might well bring about an increase in the bowing and flare of the zygomatic arches, reflected in the bizygo-

142 matic diameter. Table 20[1] contains relevant
728 statistics. In general, men with edge-to-edge bites have slightly wider faces than men with overbites, but the difference is 2.83 times p.e. only, a little short of significance. The fact that the men with overbites were 5 years younger than the others links this to age. It is not to be expected that bite alone should be related to face breadth, but rather the amount of pressure used with different kinds of bite, and this pressure can best be measured by its effect on the teeth, i.e., wear. In the edge-to-edge category, the bizygomatic mean increases, although not regularly, with the amount of wear. Two out of 3 of these increases over the means of the absent wear category are significant. The men grouped by wear categories also differ, however, in age, and the bizygomatic mean for each wear category follows closely that of the corre-

[1] [See cat 116, p. 85c -- Analyst]

8: Coon E-5 (1929-30; 46-48) 1950 EGl Albania EGl
Highland Ghegs

TABLE 20: THE BIZYGOMATIC DIAMETER, BITE, AND TOOTH WEAR.

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	No.	MEAN (MM.)	AGE (YRS.)	AGE MEAN (MM.)
Overbites	490	141.84 ± .24	36.78	142.65 ± .27
Edge-to-edge	524	142.82 ± .24	41.53	142.85 ± .30
E-E abs. wear	275	141.32 ± .22	36.26	142.65 ± .27
E-E sm-sm wear	162	143.05 ± .31	43.24	142.85 ± .30
E-E + wear	64	142.39 ± .57	48.08	143.20 ± .37
E-E ++, +++ wear	23	144.18 ± .75	53.50	143.09 ± .43

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#128

sponding age group. Face breadth increases 3 to 4 millimeters during adult life, up to the late 50's. This increase appears to be concentrated among the men with edge-to-edge bites; most of the men with overbites are younger. Although use and growth seem to go together, one cannot of course point definitely to a causal relationship. One can only suggest it as a likelihood worthy of experimental testing.

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*128 Whatever the reason, our Ghegs are 3 or 4 millimeters wider in the bizygomatic diameter than a series of genetically similar younger men would be. This should be considered in interseries comparisons.

In order to test effect of bite further, seriations similar to those for the bizygomatic were made for the bigonial diameter. No differences were found; this dimension does not even increase with age. The observations on the forward and sidewise jut of the malars and in the fullness of the cheeks were further tested for bite properties, also without showing difference. In these respects the phenotype needs no qualification, except in one sense: the triangularity of the lower face suggested by the relative widths of the bizygomatic and bigonial diameters must increase with age. Again the typical Dinaric is an elderly individual.

SOIL AND GROWTH

000 THAT the content of the soil influences the growth of populations who live off its produce has been often claimed and nearly as often denied. Without reasonable doubt it is one factor in the development of body size in man, as in other animals. Boas showed this years ago in his work on the children of immigrants[1] and, in works on this subject, Matheny and Meredith have shown that Italian schoolboys brought up in Minnesota reach, at the age of 17, a mean stature of 171.1 centimeters, a figure far above any adult mean reported for Italy.[2]

141 In northern Albania we have found tribal stature means differing from each other a little less than 7 centimeters on comparable adult stature groups. This is not too much for genetically similar populations if they are reared under vastly different conditions of nutrition. If one reviews the earliest anthropometric surveys of Switzerland,[3] one finds equally great differences between isolated valleys in some of the cantons; surveys made a half century later, after modern methods of food distribution, and modern sanitation, had been introduced, showed a much more uniform stature map. In these respects Albania was certainly in no more favorable a position in 1929 than Switzerland in the 1880's.

000 We obtain our nutrition from the soil through the agency of vegetable matter, and from the meat as well as the milk of animals which are fed upon the same. One of the most obvious minerals to be considered is lime, needed for the growth of bone; but how much lime we need, and how much of that which is in the soil reaches us, is not known. In recent years much attention has been paid to the trace elements,[4] needed for various metabolic processes, but this subject too is little known. We are told that chemical fertilizers fail to put back the trace elements taken from the soil, and that manure is far better.[5]

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[1] Boas, 1911; 1912, pp. 530–62.

[2] Matheny and Meredith, 1947, pp. 344-55.

[3] Schlaginhaufen, 1946, text and atlas; Coon, 1939, pp. 550-52, and Ripley, 1899, pp. 281–89, for discussion and sources.

133 Too little is known about the soils of northern Albania to permit a detailed study of their relationship to physique, but we can find to what extent pertinent anthropological features fit the geological picture. The latter has already been described in chapter 2, "Land of the Highland Ghegs,"1 and the principal geological areas blocked out, after Almagià on figure 2.[6] 2

The Mesozoic limestone of Malsia e Madhe, Shala, and Malsia e Jakovës is a southern continuation of the barren karst of Montenegro. Although it is a poor country for farming, and much of it is good only for grazing goats, the people on both sides of the border, though often hungry, are large and heavy boned. The serpentine highland zone, in contrast, which runs all the way from eastern Malsia e Madhe across most of Puka, all of Mirdita, and parts of Zadrima, Mati, and Dibra, is in places forested. The soil is reminiscent of that seen on certain worn-out farms of northern New England. The eastern zone of Metamorphosed Triassic and Upper Palaeozoic rocks supports open meadows and brown-soiled fields, with forests on the slopes and clumps of poplars around the villages.

These are the 3 principal geological areas. To them may be added the area of intense folding of Mesozoic-Eocene strata, along both sides of the Drin in Shoshi, Nikaj, and the northern villages of Puka. The traveler walking along the Roman road can see where the river has cut sections through the strata in several places, revealing contorted patterns, including one in the shape of a figure *S*. In north-central Mati a cap of tertiary limestone breaks the continuity of the gabbro. No village is situated directly over it, but the goats and cattle from several villages are driven onto it for summer grazing, and the villagers drink their milk and eat their flesh. Finally, a small slice of the tillage land of Zadrima is included in the so-called Dalmato-Montenegrin num- [231]

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[4] Stiles, 1946.

[5] Howard, 1947.

[6] Almagià, 1932, map on p. 467.

1[See cat. 116, pp. 76-106 --Analyst]

2[See cat 116, p. 8a --Analyst] [p. 86 (b)]

133 mulithic limestone and flysch, extending southward from the isthmus between Lake Scutari and the Adriatic.

These 6 areas correspond roughly to the tribal divisions, but some of the geological boundaries cut across tribes. From the tribal data alone a close relationship between geology and physique is suggested; if we reseriate by geological areas, ignoring tribal affiliations, we can test this more accurately.

SOIL AND PHYSIQUE IN MALSIA E GHEGNISE

*128 133 Samples for each of the 3 major areas and the area of folding range in size from 126 to 354 individuals. To the flysch section of Zadrima, 41 men can be assigned. Only in the small limestone region of Mati is the sample, 13, statistically inadequate. In table 21 the means for these 6 tribal samples in 12 pertinent measurements are given. In general, they repeat the picture shown by tribal distribution, and in certain respects accentuate it. When we compare the first 5, making 15 comparisons for 12 characters, we find 65 out of a possible 180 differences significant, or 36 per cent; 28, or 16 per cent, are more than 6.00 times p.e.; 14, or 8 per cent, over 8.00 times p.e.; and 6, or 3 per cent, over 10.00 times p.e. The means for the areas do not in themselves exceed tribal means, because the areas are spatially more inclusive than single tribes situated within them. They fall between the tribes and the total series in variability, as indicated on table 21 by values of σ. Each of the geological areas undoubtedly contains a number of small local enclaves, as Switzerland did during the last century. To find lower values for σ we would have to study these valleys, and the villages in them, one by one. Our sample is not large enough for such fragmentation.

128 141 The validity of the division of the total series into geological areas is most clearly shown by the figures on the third part of table 21, in which the stature means of the component segments of tribes falling in each geological area have been listed together. In every case but one, *the means of the segments of individual tribes diverge from each other in the directions of their areal means, and they resemble these areal means more closely than they do each other.*

*128 141 The one exception is Malsia e Jakovës, divided between limestone and folded. These 2 areas are nearly the same in stature, and the difference betwen tribal segments is inconsequential. The 4 other men from this tribe who lived in serpentine territory were much shorter, 168 centimeters. Not only were the men from serpentine territory short as a whole, but very few of the exceptionally tall men, the "giants" of 180 to 190 centimeters from whom the Ghegs get their name, are found among them. These striking figures are seen almost exclusively north of the Drin. A few turn up near the limestone area of northern Mati, where a small sample suggests that a tall enclave may be found.

*128 142 From a statistical standpoint, the most telling division within a tribe is that which splits Dibra into serpentine and eastern subsamples. The difference between the means, 3.07, is 3.49 times p.e. In order to test this for the possibility of a genetic difference I selected the one character in which Dibra is most distinctive, light brown eye color, and sorted the subsamples for it. Out of 15 men whose eyes were of this hue, 7, or 19 per cent, were from serpentine territory, and 8, or 11 per cent, from the eastern. Neither the rest of serpentine nor the rest of eastern approach these frequencies. In this character, which is certainly genetic, Dibra is still a unit, still separate from its neighbors.

141 582 *128 Although fragmentation of the series is unprofitable because of the smallness of the subsamples, one example may show what kind of thing to expect when the local enclaves can be investigated. In Dukagin, as stated earlier, mutual exogamy, with cross-cousin marriage, is the rule between the people of Shala and Shoshi. However, many of the Shala men marry Shala women, who come from the families of *anas*, unrelated in the male line to the *fis* of Dukagin. In Shoshi also local endogamy takes place, but more rarely. Shala is apparently in the limestone, Shoshi in the folded, area. Shala men whose mothers came from Shoshi are 4.04 centimeters taller (see table 21, last part)[1] than Shala men whose mothers were local, and this difference is 5.53 times its p.e. At the same time Shala men with Shoshi mothers are 3.37 centimeters taller than their cousins, the Shoshi men with Shala mothers, and this comes to 2.88 times p.e.

[1] [See Cat. 116 p. 88c --Analyst]

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*128 The people living in the northern limestone area are not only taller than the others, but also wider spanned, broader shouldered, and stronger. They are, in general, bigger and more robust. The inhabitants of the folded region approach them in build, while the serpentine dwellers are small all over, but partic-

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*128

ularly in their arms and legs, and the flyschfolk are the smallest of the lot. Whether or not it is of any consequence, the last-named live on the border of malarial country.

The inhabitants of the eastern area fall close to the mean of the total series in the measurements and dimensions of the body, but diverge

TABLE 21: ANTHROPOMETRIC MEANS AND GEOLOGICAL AREAS.

	TOTAL	FLYSCH	LIMESTONE	FOLDED	SERPENTINE	EASTERN	MAT. L.
Squeeze	112.09	102.95±1.94	116.55±.79	111.95±1.20	105.55±.73	110.70±.74	102.33
(No.)		(41)	(237)	(126)	(354)	(294)	(13)
Stature	169.71±.14	165.87± .80	173.04±.27	171.87± .34	167.22±.22	169.92±.26	167.55
Rel. span ...	103.94±.05	104.74± .30	104.58±.12	104.00± .14	103.22±.10	103.56±.11	101.88
Rel. sh. br..	22.76±.02	22.53± .12	23.08±.05	22.76± .08	22.66±.05	22.68±.05	23.42
Rel. sit. ht...	52.76±.03	53.67± .19	52.55±.06	52.59± .09	52.91±.06	52.76±.07	53.12
Head lgth...	186.18±.15	181.47± .57	188.12±.29	188.76± .44	184.32±.24	186.21±.26	187.88
Head br. ...	157.78±.12	157.44± .56	159.92±.26	157.38± .33	157.88±.21	156.57±.24	155.85
Head ht. ...	128.34±.12	128.63± .67	128.67±.26	129.08± .33	128.22±.17	127.95±.24	123.69
Ceph. index	84.84±.09	86.71± .40	85.17±.18	83.34± .25	85.59±.15	84.18±.17	83.07
(No.)	(921)	(39)	(204)	(115)	(298)	(252)	(7)
Tot. face ht.	123.90±.14	122.00± .72	124.80±.31	121.85± .44	122.60±.24	126.45±.33	126.40
(No.)	(921)	(39)	(204)	(115)	(298)	(252)	(7)
Up. face ht.	73.55±.11	71.25± .57	73.75±.23	72.20± .30	73.10±.19	74.95±.21	72.00
Bizygomatic	142.35±.12	140.90± .65	144.05±.22	142.50± .32	141.70±.19	141.80±.21	139.30

VALUES OF σ FOR AREAS; TOTAL SERIES, AND TRIBES

	FIVE AREAS	TOTAL	TRIBES
Stature	6.44	6.72	6.38
Rel. span	2.67	2.56	2.48
Rel. shoulder br.......	1.26	1.20	1.16
Rel. sitting ht..........	1.60	1.50	1.46
Head lgth..............	6.59	7.08	6.65
Head br.	5.72	6.00	5.67
Head ht................	6.04	6.03	5.87
Cephalic index.........	4.12	4.29	4.03
Total face ht..........	6.83	6.50	6.29
Upper face ht.........	4.95	5.00	4.89
Bizygomatic	5.49	5.65	5.80

STATURE MEANS FOR GEOLOGICALLY SEPARATED SEGMENTS OF TRIBES

LIMESTONE		
MeM	105	172.77
Duk	78	174.36
MeJ	52	172.48
Mat	12	168.25

FOLDED		
Duk	20	173.20
MeJ	48	172.87
Puk	57	170.23 ± .47
Puk*	13	170.85

SERPENTINE		
Puk	40	168.25 ± .72
Mir	101	166.68
Zad	70	167.72
Mat	92	166.68
Dib	35	166.46 ± .71

EASTERN		
Has	113	170.82
Lum	109	169.47
Dib	74	169.53 ± .52

FLYSCH		
Zad	34	165.72

* Thirteen men from the village of Puka, eating bread from a bakery which uses flour from all parts of the tribe.

STATURE MEANS INSIDE DUKAGIN

FATHER	MOTHER	No.	MEAN
Shala	Shala	48	172.83
Shala	Shoshi	30	176.87 ± .46
Shoshi	Shala	16	173.50 ± 1.08
Shoshi	Shoshi	4	171.98

141 *128 from all the others in the measurements of the head and face. These people are, compared to the others, notably narrow headed, narrow faced, and long faced.

Head form (figs. 14, 15)[1] follows the same distribution shown by the tribes. The one measurement that does not vary at all significantly is head height. Head length, however, shows the greatest variation of any character recorded. Computing a cephalic module from the means,[7] we find the areas clustered into 2 groups, limestone and folded, with 158.90 and 158.41 centimeters respectively, and flysch, serpentine, and eastern with 155.65, 156.71, and 156.91; big heads and medium to small heads. The size of the head, within a major racial group of man, goes with the volume of the body.[8] [2] In a series like ours where the dimensions of the head are subject to great variation of questionable origin, head size is a more useful criterion for the purpose of this chapter than its components. It clearly separates the Mountain Ghegs into 2 categories, one large, the other medium to small.

This, rather than the individual measurements and indices, is the most suggestive difference yet found between regional segments of the total series. The people in the limestone karst country are big people, and their kinsmen in the country where the soil is laid on a medley of folded outcrops are nearly as big. The people living in the land of serpentine and gabbro are much smaller, as is the small sample of flysch-dwellers. To the east, in the valley of the Black Drin and up into the Prizren region, the people are of intermediate stature, but with relatively long, narrow heads and faces.

142 *128 In addition to the data presented, sortings were made for a number of observations which might have to do with general robusticity. This effort yielded nothing that the tribal sortings have not already revealed. No difference was found between areas in the proportion of concave scapulae, which seem to have more to do with age than with nutrition. [164] Finally, the teeth of all areas were seen to be equally carious, equal in frequency of evulsion.

PRIVILEGE AND NUTRITION

565 141 *128 In many countries food and other benefits are unequally distributed, and in some of them

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[7] Cephalic module = $\frac{L+B+Ht.}{3}$

[1] [See cat. 116, pp. 114-115 --Analyst]

[2] [See cat. 116, p. 89b --Analyst]

141 members of the privileged classes are taller
565 than their less-favored fellow citizens. In the
*128 mountains of the Ghegs no stereotyped class system exists. Nevertheless in each tribe a few men hold higher political rank than the others, and a little difference in wealth may be discovered. Wealth and power usually go together. Using the data discussed in chapter 5, on "Politics and Feuding," page 30,[1] I have segregated 66 office-holders, 23 from limestone territory, and 43 from serpentine. The latter group included the entourage of Prince Jon Markajon (fig. 10, a),[2] the tribal chief of Mirdita. These men had eaten the best the land had to offer. As table 22 shows, this made no real

TABLE 22: GEOLOGY AND STATURE, OFFICE-HOLDERS.

	LIMESTONE			SERPENTINE		
	No.	MEAN		No.	MEAN	
Total	237	173.04	.34	354	167.22	.22
Office-holders ..	23	174.09	.78	43	167.63	.57

[264] difference in stature. In the mountains a chief eats at a big table, surrounded by his retainers, but any visitor is free to join at the hospitable
[262] board. The office-holders probably get more meat than the poorer people, but everyone consumes dairy products, bread, and legumes. Everyone also derives all his food from the same geographical source.

CONCLUSION

*128 Although the geological map on which this study is based was of a most general character, it seems to have been accurate enough for the present purpose. The minerals of this region which it shows can be correlated with the body size and robusticity of the inhabitants as populations, and with nothing else which this particular study reveals, other than a partly coincidental east-west trend in head and face form, which will be discussed later. What minerals, if any, are involved in these size variations, how they are assimilated, if they are, and how they affect growth, if they do, are problems beyond the scope of this paper and its author's competence. If this excursion into the nutritional field has any value it lies in the fact that other explanations of regional size differences have been eliminated.

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[*] Coon, 1939, p. 267.

[1] [see cat. 116, pp. 30b-30c -- Analyst]

[2] [See cat. 116, p. 110 -- Analyst]

CRADLING

854 141 304 THE EVIDENCE ACCUMULATES

I WROTE, in 1939, "There has been much discussion upon the subject of occipital flattening, both in Albania and in Asia Minor; there are two definite schools, one which believes that it is natural and racially determined, the other that it is a form of artificial deformation caused by cradling. My own position lies between these two extremes; occipital flattening is without doubt a phenomenon associated with the entire mechanical orientation of the cranium in the Dinaric race, and especially with the position of the foramen magnum to the rear of that usual in most races. As such, it is undeniably inherited.

"At the same time, the use of the Albanian cradle, in which the shoulders are bound but the head is not, may in some instances have caused an intensification of this flattening, since the heads of some living Albanians are unquestionably deformed. However, since cradling practices are regionally uniform in Albania, the geographical distribution of this character is wholly racial in pattern."[1]

I also promised in a footnote: "A detailed study of this question will be published in the author's "The Physical Anthropology of Northern Albania," the provisional title of the present monograph. Since then evidence has been accumulating that "some instances" should be changed to "most instances." Father Ewing found that Lebanese children born in Brooklyn show much less flattening than their parents, and 2 Harvard graduate students, Mr. David de Harport and Mr. William Laughlin, working under my direction, found the same thing among Tosks in Greater Boston.[2] [1]

141 In the course of the present monograph 6 pieces of evidence have appeared in other contexts. In chapter 10, on "The Mountain Gheg Phenotype," on page 62,[2] and table 4,[3] we saw that the sigma ratios for head length, head breadth, and the cephalic index are abnormally high, both as a total and within tribes, and this applies especially to the ceph-

[1] [see cat. 116, p. 90b--Analyst]

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[1] Coon, 1939, p. 600.

[2] [see cat. 116, pp. 62a-62e --Analyst]
[3] [see cat. 116, pp. 54f - 54m -- Analyst]

alic index. In the same chapter, on page 63,[1] it appeared that the tribal means differ more from each other and from the total means in these 3 characters, and in the breadth-height index, than in any other criteria except for the gross body diameters, of which we have already tentatively disposed in chapter 13, on "Soil."[2]

In the same chapter, on page 66,[3] we found that the tribes differ from each other most notably and significantly in 7 observations of the cranial vault, especially in bathrocephaly, occipital flattening, and lambdoid flattening. We further saw that the frequencies of degrees of flattening assumed the form of a normal curve quite independent of the "absent" category. If flattening were natural one would expect *sm* to exceed +, + to exceed ++, etc., in frequency.

In chapter 11, on "Age," page 77,[4] it was revealed that the head length fails to follow the normal or expected age changes, but that the head breadth bellows out and in with age, doing double duty. In chapter 13, on "Soil," page 89,[5] head form was shown, in a general way, to follow its own geographical course without regard to the soil-area divisions which so firmly mark frontiers of physique in the sizes of the body as a whole and of the head.

Any one of these red lights flashing through the chapters would have been enough to warn us that something is peculiar about head form in this series. In fact, there are no green lights; in no segment of this study has the cranial vault behaved as one expects in a normal population. "Normal" in this sense refers to the large series studied in the past, and most of these have been from western Europe and modern America. It will probably be shown as time goes on that many of the peoples of the world have heads comparable to those of the Albanians. We know already that this is true of Armenians, Lebanese, and Montenegrins, and it can probably be demonstrated for other European populations.

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[8] Ewing, 1947, pp. 235–36; Ehrich and Coon, 1948, pp. 181–86.

[1] [See Cat. 116, pp 63a -63 b --Analyst]

[2] [see cat. 116, pp. 86a - 89 b --Analyst]

[3] [See cat. 116, pp. 66a - 66 b --Analyst]

[4] [See cat. 116, pp. 77a - 77 c --Analyst]

[5] [see cat. 116, pp. 89a - 89 b --Analyst]

304 854 The literature of the entire subject of cranial deformation has been ably covered by Dingwall,[3] who quotes some Albanian instances in which intentional molding was observed. Miss Hasluck confirms this for Macedonia, and has a paper on the subject for Albania in preparation.[4] It is hard to say how much of the cranial deformation in Albania is intentional, and how much the unconscious result of cradling.

THE TECHNIQUE OF CRADLING

854 Albanian mothers, like mothers in other countries, are often faced with a "baby-sitter" problem. A young woman wants to go out in the fields to work, or to the market for shopping, and she cannot leave her baby alone. Besides, if she is to be gone for any length of time she must have her baby with her to nurse it. When she is on the march she cannot afford to immobilize her hands by carrying it in her arms. Walking-time is spinning-time in Albania. These are some of the practical reasons for a cradle. Other reasons are emotional and historical. The cradle is a part of Albanian culture, like the hearth and the loom—one of the material symbols of the activities of men, women, and children in families. Our grandfathers were cradled, and our grandfathers were wise and generous men, and brave warriors.

After he has been washed, blessed, and swaddled, the baby is laid in the cradle, which is lined with soft blankets. A thin pillow protects his head from the wood. There may be some variation on this point, as to how thin and how soft the pillow is. Once on his back, the baby is bound to the cradle-board at the shoulders and also lower down. This keeps him from moving about, and his shoulders stay flat. He can move his head about as much as this position will allow. Although the head is not bound, its easiest position in rest is squarely on the occipital bone.

The child rides and nurses and sleeps in this cradle most of the time until he is taken out for good, which is said to vary between 6 months and a year, or even longer. During this period it is changed from swaddling clothes to garments which permit freer movements. When the time for uncradling draws near, the mother takes the child out now and then to see if it can sit up; when it is able to sit by itself on a blanket while she works, she may remove it from the cradle altogether.

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[3] Dingwall, 1931.

[4] Hasluck, 1947, pp. 130-31.

Armenian as well as Albanian informants tell me that 2 factors govern the age at which the child is uncradled: its "strength," or ability to "sit up without falling down," and the [304] preference of the parents. A "strong" baby, therefore, would be released earlier in life than a "weak" baby, and a difference between a year's cradling and 6 months' might make all the difference between no visible flattening and an extreme case. One is also tempted to postulate that a "strong" baby's bones would resist deformation more than those of a "weak" baby, particularly if weakness were a reflection of nutrition in a hungry land, as in many parts of the Gheg mountains. When parental choice is added, we find reasons enough to explain variations in the frequency of flattening.

Thanks to the generosity of Mr. Dmitri Peterson of Somerville, Massachusetts, we have a scale model of such a cradle to study first hand. Mr. Peterson was taught the trade of carpenter in Albania as a young man, and has made many such cradles. Although his home was in southern Albania, my photographs and memory of Gheg cradles showed them to be much the same. The cradle made by Mr. Peterson consists essentially of 2 boards, a backboard on which the baby lies, and a headboard shielding the top of his head. Other boards form the sides. A footboard, which is the same piece of wood as the front rocker, has been cut crescent-wise to let the baby's feet through. He could, however, brace against it with his feet if he tried.

The cradle depicted in figure 11, *a*,[1] on the other hand, has a sling of yarn for the head to rest on, and only a low headboard. The footboard is low, but straight. This cradle was photographed in Zadrima. Baron Nopcsa[6] illustrates another cradle from "Planti (Gebiet von Pulti)," which I presume is in Malsia e Madhe (fig. 11, *d*).[2] It had a headboard and a

[1] [See p[illegible] - Arm[illegible]]

[2] [See p. 111 - [illegible]]

[6] Nopcsa, 1925, p. 109.

854 curved footboard, like Mr. Peterson's. In Haberlandt's work[6] 2 are shown, both of the Peterson variety. One was from Scutari (fig. 11, *b*)[1] the other belonged to Vlachs in central Albania (fig. 11, *c*).[2]

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304 Were one to make a detailed study of cradle types in the Gheg mountains, tribe by tribe and village by village, one would probably find variations both in form and in use which might further help explain local differences in head form. It may for example be no coincidence that the Zadrima cradle has no headboard, while the Zadrima sample is high in occipital and very low in lambdoid flattening. It is not inconceivable that a baby who had outgrown his cradle and who had learned to brace his feet on the footboard might push his head against the headboard if there were one, and give himself lambdoid flattening. On the other hand, a slanting pillow might have the same effect.

Sometimes one finds both kinds on the same head; presumably the child was occipitally flattened first, then, as he outgrew his cradle, lambdoid flattening appeared. If during the process of flattening the smooth union of the parietals and the occipital bone were impeded, and an irregular bone growth resulted, the anomaly called bathrocephaly would be added. It is possible that, in some cases, bathrocephaly might be the only discernible after-effect of cradling; that the bones would spring rather than flatten. What is badly needed is some experimental work on this subject; until that is done it must remain partly speculative, since these types of deformation also occur on heads which have not been cradled, in lower frequencies and in less extreme degree.

THE RELATIONSHIP BETWEEN TYPES OF DEFORMATION

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*128 On figure 7[3] the frequencies and percentages of the various categories of occipital flattening, lambdoid flattening, and bathrocephaly have been given. Table 23[4] shows how these 3 phenomena are related. Less than a third (31.40%) of the men had unflattened heads, and 27 per cent also lacked bathrocephaly.

[1] [See cat. 116, p. 111 --Analyst]

[2] [See Cat. 116, p. 111 --Analyst]

[3] [See cat. 116, p. 92b --Analyst]

[4] [See Cat. 116, p. 93d --Analyst]

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[6] Haberlandt, 1917, p. 11, table III, no. 12, and p. 95, fig. 29.

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These 27 per cent were undoubtedly cradled like the others; perhaps they were "strong" babies and released early; perhaps they had softer pillows than the others. What caused this difference in each case we do not know.

Of the two-thirds of the men who remain, those who have one kind of flattening seldom have the other. The fourfold table at the bottom of table 23 yields a coefficient of association of − .69, which is strongly negative.[7] The 68 men, or 6 per cent of the series, who have both, fail to reach the +++ category in either plane.

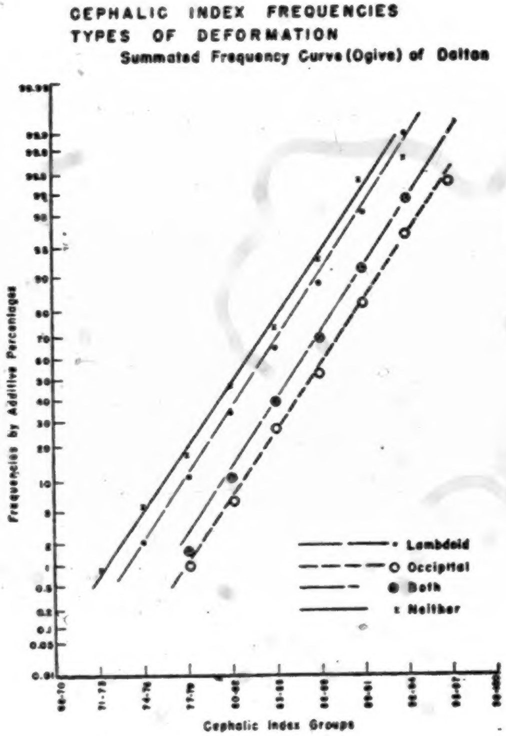

Fig. 7. Cephalic index frequencies.

Bathrocephaly is closely linked to lambdoid flattening, to the extent of a + .84 coefficient of association, so closely that in the rest of this chapter we can, for practical purposes, ignore it. We can afford to do so, however, only

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[7] Yule's formula. $Q = \frac{ad - bc}{ad + bc}$; Arkin and Colton, 1947, p. 100.

304 *728 after considering the 49 men who had bathrocephaly without any flattening at all. These 49 men have a mean cephalic index of 82.41 ± .35, nearly the same as the total of 286 men who had no flattening, 82.97 ± .15. It seems fully justifiable to consider them in the latter category.

THE EVIDENCE OF BROTHERS

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In our series it was possible to identify 13 pairs of brothers and 4 sets of 3. Their positions in respect to presence or absence of the 2 kinds of cranial flattening are shown on table 24.[1]

This table is difficult to interpret, largely because the numbers of individuals are so small. In the pairs of brothers, there seems to be a tendency for both or neither to have flattened skulls, regardless of the type of flattening. In the sets of 3, the numbers are too small to tell anything of consequence except that the same mother may bear sons who differ. In the upper right corner of the table the numbers in parentheses represent the numbers expected in each of the 4 classes if the group of 17 families were a random sample of the whole series. If we combine "lambdoid only" and "occipital only" we see that this is the

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*P=present.
†A=absent.

[1] [See cat. 116, p. 93e--Analyst]

case. The evidence of brothers is included here merely to show that neither genetics nor family cradling habits can be shown to govern the presence or absence of the 2 types of flattening. Unless we leave it entirely to chance, the theory of the "strong" child seems most likely.

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TABLE 23: TYPES OF FLATTENING.

		OCCIPITAL FLATTENING					
		ABS.	SM	+	++	+++	TOTAL
LAMBDOID FLATTENING	Abs.	335	22	164	66	10	597
	sm	98	8	4	—	—	110
	+	275	7	43	2	—	327
	++	27	—	2	2	—	31
	+++	2	—	—	—	—	2
	Total	737	37	213	70	10	1067

	COMBINATIONS OF FLATTENING		BATHROCEPHALY AND FLATTENING BATHROCEPHALY ABSENT		PRESENT		
	No.	%	No.	%	No.	%	TOTAL
No flattening	335	31.40	286	85.37	49	14.63	100.00
Occipital only	262	24.56	254	97.21	7	2.79	100.00
Lambdoid only	402	37.66	183	45.52	218	54.48	100.00
Both	68	6.38	34	50.00	34	50.00	100.00
Total	1067	100.00	757		308		

	OCCIPITAL	
LAMBDOID	ABS.	PRES.
ABS.	335	262
PRES.	402	68

Q = − .69

	BATHROCEPHALY	
LAMBDOID	ABS.	PRES.
ABS.	540	56
PRES.	217	252

Q = + .84

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TABLE 24: HEAD FLATTENING AMONG BROTHERS.

	Pairs of Brothers	
	Occip.	Lambd.
Both brothers	4	2
Older only	1	3
Younger only	3	2
Neither	5	6
	13	13 pair

Combinations Within Families Both Pairs & Sets of Three		
Both types	5	(5)
Occipital only	7	(4)
Lambdoid only	3	(6)
Neither	2	(2)

Four Sets of Three Brothers

	Occipital			Lambdoid		
Birth Order	1	2	3	1	2	3
#1	P*	A†	P	A	A	A
#2	A	A	A	P	P	A
#3	P	A	P	A	P	A
#4	P	A	A	A	A	A

HANDEDNESS, ASYMMETRY, AND FLATTENING

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In table 4 we saw that over a third of our series had asymmetrical heads; that is a high ratio. Facial asymmetry, on the other hand, was negligible. With an abnormal amount of cranial asymmetry, and the[1] indication that much if not all of the flattening might also be abnormal, it seems worth while to explore the possibility that these 2 features are associated. First, however, it must be explained how we judged which side the asymmetry was on. An asymmetrical skull bulges to one side or the other. When a skull bulged to the left, we called it left cranial asymmetry, and the converse. When the skull was both asymmetrical and flattened, the plane of flattening pointed to the opposite side from that designated.

TABLE 25: HANDEDNESS, ASYMMETRY, AND FLATTENING.

	Occipital	
Asymmetry	Abs.	Pres.
Abs.	549	188
Pres.	131	199

Q = + .63

	Lambdoid	
Assymmetry	Abs.	Pres.
Abs.	387	210
Pres.	293	177

Q = + .06

	Occipital Flattening Absent	
Cranial Asymmetry	Handedness	
	L	R
L	7	47
R	5	127

Q = + .58

	Occipital Flattening Present	
	Handedness	
	L	R
L	12	45
R	2	138

Q = + .89

Table 25[2] shows a definite tendency for men with occipital flattening to have cranial asymmetry as well; a little more than half the occipitally flattened heads are also asymmetrical. Men with lambdoid flattening may or may not have cranial asymmetry; in their case the association is a chance one. This seems

1[See cat. 116, p. 54 m --Analyst]

2[See Cat 116, p.94a --Analyst

304 145 *128 logical enough if flattening is caused by cradling. A baby lying on his back might strain to turn to one side, and if he habitually chose the same side, that side might be expected to bear the bulk of the flattening. On the other hand if the top of his head were pressed against the headboard, which side he turned to would make little difference.

The way to test this second theory is to see whether or not occipital flattening and handedness are associated. The frequencies for handedness are given on table 4.[1] We tested for handedness by seeing which hand the man put out to take the dynamometer, and if he seemed to hesitate, by asking him to throw a stone. A total figure of 7 per cent for left handedness seems reasonable for a country where almost no one is literate, and where the only compunctions about which hand to use lie in the field of eating and its ultimate result.

Table 25[2] also shows that handedness is associated with cranial asymmetry in any case; in the men who were not occipitally flattened, it reached a Q of + .58, but in those who were so flattened, it attained the nearly complete association of + .89. What this seems to mean is that the babies who were right handed had a tendency to roll over on the left to free their right arms, and to look with their right eyes, etc., while the babies who were left handed had a tendency to do the opposite. It would be very strange if these movements would distort the skull, or be associated with such distortion, without benefit of cradle.

THE BOSTON EVIDENCE

167 The best kind of evidence, of course, is experimental. Although it was impossible to experiment with the Ghegs, a full-dress experiment of exactly the kind we need was conducted unwittingly for us by a group of several thousand Tosks. Shortly before World War I a whole village, Katundi, pulled up stakes and moved to America. Most of them settled in the neighborhood of Boston, where they were joined by others from neighboring villages. The anthropological problems presented by this migration have yet to be studied as a whole, and their investigation should yield much profit in years to come. For the moment a slight beginning may be made, which will serve the purposes of the present report.

[1] [see cat. 116, p. 54m --Analyst]

[2] [see cat. 116, p. 94a --Analyst]

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During the winter of 1946-47, 2 graduate students in the Harvard Department of Anthropology, despite busy programs, undertook to measure and observe a sample of the colony, including both Albanian-born and American-born (fig. 16),[1] cradled and uncradled. They measured 37 adults of both sexes who had been born in Albania, and cradled, and 30 individuals, also of both sexes, born in America, of whom only 12 were 20 years old or over.

Table 26[2] gives the results in the categories of occipital and lambdoid flattening. Only one person born in Albania lacked any kind of flattening; he is Mr. Peter Peterson, whose picture may be seen on plate 14, fig. 3, of "The

[1] [See cat. 116, p. 116--Analyst]

[2] [see cat. 116, p. 95c--Analyst]

304 Races of Europe." With a cephalic index of
128 91.5, he is a living argument that cradling may in some cases raise the cephalic index without producing flattening; persons with this index who were not cradled are exceedingly rare.

Nearly three-fourths had occipital flattening, while two-thirds had lambdoid as well. Of the 46 per cent with both, many had pronounced flattening in 2 planes, separated by an angle. Three were flattened at such an angle that it was necessary to decide arbitrarily between the 2 categories. On the blank used no place had been assigned for +++, or it would have been used. Although no sex difference appears in presence or absence of flattening, in both occipital and lambdoid flatten-

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Table 26: Type of Flattening.

Birthplace	Albania		America				
					Ages		
	#	%	#	%	5-14	15-19	20
No flattening	1	2.70	4	13.33	0	2	2
Occipital only	11	29.73	4	13.33	2	0	2
Lambdoid only	8	21.62	20	66.67	8	5	7
Both	17	45.95	2	6.67	1	0	1
Totals	37		30		11	7	12

Degree of Flattening

	Occipital				Lambdoid			
	Albania		America		Albania		America	
	#	%	#	%	#	%	#	%
Abs.	9	24.32	24	80.00	12	32.43	8	26.67
sm	1	2.70	3	10.00	10	27.03	12	40.00
	17	45.95	1	3.33	7	18.92	8	26.67
	10	27.03	2	6.67	8	21.62	2	6.67
	37		30		37		30	

Sex Differences

Albanian-Born			American-Born		
Flattening	Male	Female	Flattening	Male	Female
Abs.	1	0	Abs.	2	2
Pres.	21	15	Pres.	14	12

Sex Differences

	Albanian-Born					American-Born			
	Occipital		Lambdoid			Occipital		Lambdoid	
	♂	♀	♂	♀		♂	♀	♂	♀
Abs.	4	5	6	6	Abs.	12	12	3	5
sm	1	0	4	6	sm	3	0	6	6
	8	9	6	1		0	1	5	3
	9	1	6	2		1	1	2	0
Total	22	15	22	15	Total	16	14	15	14

TASKS

304 128* ing, the men showed much more marked degrees than the women. It would be hard to find anywhere a more flattened group. These Tosks are much more flattened than the Ghegs of our series; only the tribesmen of Zadrima and Malsia e Madhe approach them. The Tosks, however, characteristically have both lambdoid and occipital types at once while among the Ghegs a combination of the two is rare. The Tosks are also stockier, heavier, hairier men than the Ghegs, and more frequently bald. Racially they appear to be typically Alpine, whereas the Ghegs are more typically Dinaric, in the classic sense.

The children of these people, born in America and treated in infancy in exactly the same fashion as other American children, differ from their parents, as might be expected. Four out of 5 had some lambdoid flattening, while only one out of 5 had the occipital variety. In the frequencies of degree of occipital flattening a regular descending progression is seen from absent to *sm* to + to ++, which is what one would expect for the incidence of a minority character were it acquired through the same agency as its absence. This is the opposite situation from that seen among the Ghegs and the Albanian-born Tosks. The degrees of lambdoid flattening also assume a normal distribution, with the peak at *sm*. Two uncradled males with lambdoid flattening also had bathrocephaly. Small as this series is, it is highly suggestive.

Flattening of both varieties appears in early childhood, and probably in infancy, among the American-born. It seems not to increase with age. Lambdoid flattening is just as frequent among the uncradled as among the cradled, but among the latter it is much more marked. From this evidence one can only conclude that when it appears as a small area of flattening only it is probably genetic, but that when cradling is added the area increases. Occipital flattening is found among only 6 out of 30 of the uncradled. Three of these 6 were traces to slight. Of the other 3, one with + was an 11-year-old girl; the other 2 had ++. Of these, one is a younger brother of Mr. Peter Peterson, aged 24. There can be no question whatever in his case. He was not cradled. The other is a 33-year-old woman born in Maine. In her case we are not as sure. Occip-

304 *128 ital flattening is probably also genetic at times, or produced by other environmental influences of which we are not aware. When it occurs with the frequency and to the degree shown by the cradled Tosks, we may be reasonably sure that the cradling is responsible for most, but not necessarily all, of it. The Boston Tosk population urgently needs a thorough study, while the old people who led the colony across the ocean are still with us, and before the young people are dispersed.

THE ANTHROPOMETRY OF FLATTENING

141 304 *128 Returning to our Gheg series, we may survey the effect of both kinds of flattening on the major dimensions of the head, and on the cephalic index, as shown in table 27[1] and figure 7.[2] Constants were also seriated for stature, minimum frontal, bizygomatic, bigonial, total face height, upper face height, nose height, nose breadth, and the nasal index. Since all of these drew complete blanks except bizygomatic, we may conclude with confidence that within present limits cranial vault form has nothing whatever to do with any of them except the width of the face, either genetically or mechanically. Furthermore, the failure of such sensitive criteria as face height and nose height to change with type of flattening confirms the independence of these latter from the influences of age, once the sutures have entirely closed.

The dimensions of the vault sort themselves out into 2 categories; those that are nearly identical with each other and those that approach or attain statistical significance. In head length, *lambdoid* and *both* are the same; in the breadth, *lambdoid* and *neither*. In the height, *occipital* and *both* are the same; in the cephalic index all are different.

It is interesting to observe that lambdoid flattening, despite its position, still causes a little shortening of the head, and that the men with both types of flattening follow those with lambdoid only in this dimension. In breadth, however, the lambdoidally flattened heads follow the unflattened, while the men with both take their breadth from their occipital flattening. As one would expect, lambdoid flattening carries with it the lowest values for

[1] [see cat. 11b, p. 97a -- Analyst]

[2] [see cat. 11b, p. 92b -- Analyst]

141 head height and occipital the highest. The men
304 with *both* follow the occipital line, while those
*128 with *neither* are between. Whatever else a
man may have, lambdoid flattening prevents
his head from being shortened beyond a certain degree; if he has occipital flattening he is
sure to have a broad and high vault. As one

141 would expect, the values for the cephalic
304 index follow a progression from *neither* to
*128 *occipital*, and a range of 5 index points. Clearly, flattening is a vital factor in the makeup of Dinarics.

In the means for the bizygomatic diameter, significant differences are seen between ***lambdoid*** and ***both***, ***occipital*** and ***both***, and ***neither*** and *both*. Lambdoid flattening does not broaden the face but apparently occipital does. The reason why ***both*** exceeds ***occipital*** only is that ***both*** has higher values for degree of occipital flattening than ***occipital only***.

141 This increase in face breadth, though sig-
304 nificant, is not great. Another element in this
*128 complex is the nasal profile, which seems to grow more convex as the occiput becomes more flattened. The significance of this, if any, may be seen more in the steady progression of percentages of convex in the column repre-

141 senting degree of occipital flattening than in
304 any statistical test. It may be added that many
*128 other attributes were tested for association
with head form, and none of them were found to be related. Lambdoid flattening does nothing to the face. Occipital flattening may bring about a slight facial broadening in connection with the greater broadening of the parietals, for as it separates the areas of attachment of the temporal muscles, it may, in so doing, thus spread the hoops under which these muscles pass to the mandibular condyles, which remain constant. The increase in nasal

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Table 27: Anthropometry and Flattening.

Vault Dimensions

	Only Occipital	Only Lambdoid	Both	Neither
No.	262	402	68	335
Head lgth.	181.70 ± .27	186.73 ± .23	186.71 ± .95	188.36 ± .25
Head br.	161.50 ± .23	156.93 ± .19	160.10 ± .44	156.10 ± .21
Head ht.	129.44 ± .33	126.88 ± .26	129.76 ± .73	128.23 ± .23
Cephalic index	87.91 ± .16	84.08 ± .12	86.82 ± .67	82.96 ± .23
Bizygomatic	142.60 ± .25	141.79 ± .19	144.78 ± .46	142.06 ± .21

Degree of Flattening and Cephalic Index

	Occipital*		Lambdoid*	
Abs.	737	83.56	597	85.18
sm	37	85.86	110	83.93
+	213	87.31	327	84.31
++	70	89.06	33	87.09
+++	10	92.10		
Total	1067		1067	

* Including both.

Nasal Profile and Flattening

	Concave #	Concave %	Straight #	Straight %	Convex #	Convex %	Conc.-Conv. #	Conc.-Conv. %	Total
Abs.	54	7.30	300	40.70	374	50.75	9	1.25	737
sm	3	8.11	15	40.54	18	48.65	1	2.70	37
+	7	3.37	80	37.47	125	58.69	1	.47	213
++	5	7.14	18	25.71	47	67.14	0	0	70
+++	0	0	3	30.00	7	70.00	0	0	10
Total	69		416		571		11		1067

Convexity

Occip. Flattening	Absence	Presence
Abs.	363	374
Pres.	133	197

Q = .45

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convexity would reflect a thrusting forward, in extreme cases, of the bony structures in the sagittal line of the cranium through the region of the nasal passages.

Before this section is concluded, it might be of interest to mention that the 22 adult male Tosks measured in Boston have a mean cephalic index of 89.91, with a mode of 8 individuals at 91. The distribution is not a curve at all.

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*128 The 5 adult males born in America have cephalic indices of 76, 78, 78, 87, and 88, with a mean of 81; 3 out of 5 are as long headed as the rest of the American population, while the other 2 approximate the mean and mode of their cradled parents.

TRIBAL DISTRIBUTION OF HEAD FORM

Table 28[1] shows clearly that it is not merely

[1] [see cat. Nb, p. 98e -- Analyst]

141 the relative frequency of occipital and lambdoid
304 flattening that causes regional differences
428 in head form (figs. 7, 14, 15).[1] When the unflattened individuals in each tribal series are sorted out and reseriated, we find that in each case a lower mean is obtained than before, varying from .74 points lower in the case of Dukagin, to 2.98 points lower in Has. The complete regularity of this column provides

[1] [see cat. 116, pp. 92b, 114, 115--Analyst]

141 for its validation. If flattening alone were
304 responsible for the differences in cephalic
*128 index, then when all flattened persons were
removed the tribal means should be identical. They are not, and we have uncovered a real, probably genetic, difference in head form ranging from a mean of 84 in the west to 81 in the east. This accords perfectly with the regional distribution of facial measurements which we have already seen.

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Table 28: Tribal Cephalic and Index Means.

Total and Unflattened

	No.	Total	No.	Unflattened
MeM	105	86.79 ± .25	22	84.28 ± .46
Duk	106	84.54 ± .24	30	83.80 ± .33
MeJ	104	83.04 ± .28	41	81.22 ± .40
Has	114	85.59 ± .28	26	82.61 ± .59
Lum	109	82.62 ± .27	32	81.38 ± .40
Puk	102	83.76 ± .26	55	82.69 ± .27
Mir	101	84.39 ± .27	33	83.09 ± .42
Zad	105	86.67 ± .24	35	84.86 ± .38
Mat	104	86.49 ± .27	22	84.14 ± .54
Dib	108	84.96 ± .26	32	83.34 ± .49

200 THE RACIAL POSITION OF THE GHEG MOUNTAINEERS

000 THIS chapter need not be long. It will consist merely of a restatement of the problem, a review of the evidence, and a conclusion.

105 1. The problem is, what is a Dinaric, and how does he come to be one? The Gheg mountaineers were selected as subjects for this experiment because they seemed to be the most Dinaric people in the world, and because they are located in an area ideal for controls.

2. The mountains in which they live prove to be a true refuge, difficult of access, conservative in every sense.

3. The work of the Gheg keeps him and his family busy at home. It utilizes all of the available soil, and the limit of the number of people whom it can support has long since been reached in terms of the techniques employed. The few craftsmen who come into it to work, like the castle-builders, move on. The Mountains of Giants, like the Highlands of Scotland, export men. None are imported.

4. The mountaineer chooses his bride by a time-honored system which, while sociologically exogamous, biologically keeps the genes within very close lines.

5. His political system provides local autonomy and keeps people home. Feuding keeps men home, too, or, if they lose, sees that they are exiled completely out of the mountains.

6. Religious differences help block marriage with outsiders. Neither Catholics nor Moslems will marry Orthodox. Except in a few regions it segregates Catholics and Moslems as well, and has done so for 4 centuries.

7. The historical picture is reasonably clear. Except for the lowlands along the coast, the tribal area was probably uninhabited, or nearly so, until the second half of the first millennium B.C. Illyrians moved down from the northwest, following the mountains, and settled it. Some Thracians may have entered from the east, and a few Goths straggled into the country around the fork of the Drin. No real addition to the basic Illyrian population took place until the 16th century. At that time the Turks massacred whole villages all the way

105 from Durazzo to Scutari, and in the region of Malsia e Madhe and the lower reaches of Dukagin. To replace the nearly exterminated population, immigrants arrived from the land from which the first ancestors of the Ghegs had come—Bosnia.

000 8. The series which we have studied covers all of the tribes, most of the *bairaks*, and many of the villages. Except for a few tribes within which the regional distribution is uneven, it gives a true coverage of the anthropometry of the mountain people.

9. It defines the Mountain Gheg as a Dinaric of the classic type, as expected, but with wide variations. These are concentrated in gross body size and strength, the size and shape of the cranial vault, and in a few local peculiarities such as the incidence of bilateral chins, baldness, and deep lumbar curves. The greatest uniformity is found in the breadths and proportions of the face, the dimensions and morphology of the nose, hair form and distribution, and pigmentation. The characters which are most uniform are the ones most likely to be genetically controlled; most of those which are most variable are those which the environment can affect the most.

10. Many of these latter differences can be tentatively eliminated or equated by the use of certain controls: age, dental occlusion, nutrition, and the effects of cradling.

11. A few others cannot, as, in Dukagin, the high frequency of brown hair, lambdoid flattening, bilateral chins, and broad shoulders. This points to the presence of a genetic element much less evident in the other tribes, except, in lesser degree, in Malsia e Madhe. Similarly the men of Has, who marry often with their fellow Albanians on the Kossovo plain, have a few peculiarities of their own, particularly a tendency to more baldness, more black hair, and a slightly darker skin. These characters would relate them to the people farther east.

12. Despite all the controls, an east-west gradient remains in head and face form. The people to the northwest are broader headed,

000 broader faced, and shorter faced than the people to the northeast; those to the south are in between, perhaps transitional to the Lowland Ghegs. How to explain this is not clear. Perhaps the Bosnians brought in the breadth, perhaps some remnant of the pre-Illyrian populations of the coast is responsible. Wherever it came from, or however it grew, it forms a continuity with the Slavic-speaking peoples to the northwest and the Tosks to the south.

13. The regional differences which have been uncovered in spite of the controls are probably mostly genetic, although this cannot be fully tested until better material is at hand. Blood groups would help immensely.

14. The typical Dinaric has been shown to be partly the product of age and artifice. His gaunt face and hawklike nose come to him usually in middle age; his broad, occipitally flattened head is largely the result of cradling. His lean body is to a large extent that of a man who has worked hard and eaten little.

15. If one were to choose at random 1067 newly born Mountain Gheg boys from all tribes, all of the same age and at the same time, transport them to America, feed them on the fat of the land, and bring them up as the sons of wealthy and provident American parents are reared, and then measure them all at the age of 20, we would have an equated anthropometric series. It would be comparable to many others in the literature of physical anthropology. I venture to predict that the means of some of their measurements would be:

Stature	173 cm.
Relative span	103
Relative shoulder br.	22.5
Relative sitting ht.	52.5
Head length	190 mm.
Head breadth	156
Head height	128
Total face height	122
Minimum frontal	108
Bizygomatic	138
Bigonial	108
Cephalic index	82
Facial index	88
Nasal index	60

000 Sixty-five per cent of these young men would have dark-to-medium brown hair, 20 per cent black, and 15 per cent blond, including light brown. The skin would be fair; most of the eyes would be mixed, with the lighter shades predominant, and darks and pure lights would constitute about a fourth of the whole. Sixty per cent of the noses would have straight or slightly wavy profiles, 10 per cent would be concave, and only 30 per cent convex.

These boys would not be distinguishable from ordinary Americans, except to an expert on race, who might recognize them as different, not individually, but as a group, only by their possession of a mean cephalic index about 4 points higher than the average. Or perhaps the brachycephaly too would fade away upon transplanting; that we cannot tell.

144 16. If we equate the Mountain Ghegs in such a fashion with western Europeans and Americans, we find that they would be comparable to many local populations in western Germany and Austria. They are of the same basic genetic stock, disseminated widely in the Iron Age, from which most northern and western European peoples came.

17. Like most other European populations of essentially Nordic or Mediterranean (or Nordic and Mediterranean) character, they include telltale traces of pre-Nordic and pre-Mediterranean racial features, which make some of them broader of trunk, more heavily muscled, wider of head and face, blunter nosed, and heavier jawed than others. In the Mountains of Giants this element is concentrated in the northwest, in Dukagin, with a lesser incidence in Malsia e Madhe. Were the series from that confederation large enough, regional subseries would probably make this clear. It seems most likely that this element entered with the Bosnian immigration of the 16th century, although some of it may have been present in still earlier times.

000 18. Geography, technology, sociology, history, and physical anthropology all play their parts in the resolution of this problem. I only hope that the answer is really as simple as I have suggested.

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REFERENCES

113

Almagià, Roberto
1932. Modern Albania: a review. *The Geographical Review*, vol. 22, pp. 464–73.

Arbenia
1930. Newspaper in Tirana, Albania. June 1.

Arkin, Herbert and Colton, R. R.
1947. An outline of statistical methods. New York.

Baker, L. W.
1922. The influence of the forces of occlusion on the development of the bones of the skull. *International Journal of Orthodontia, Oral Surgery, and Radiography*, vol. 8, no. 5, pp. 3–24.

Bernatzik, H. A.
1930. In den Sümpfen und Gebirgen Albaniens. *Atlantis*, vol. 2, pp. 597–612.

Boas, Franz
1911. Changes in bodily form of descendants of immigrants. *Senate Document*, no. 208, 61st Congress, 2nd Session, Washington.
1912. Changes in the bodily form of descendants of immigrants. *American Anthropologist*, n.s., vol. 14, pp. 530–62.

Bowles, G. T.
1932. New types of old Americans at Harvard. Cambridge, Massachusetts.

Chapple, E. D. and Coon, C. S.
1942. Principles of Anthropology. New York.

Coon, C. S.
1931. Tribes of the Rif. *Harvard African Studies*, vol. 9.
1939. The races of Europe. New York.

Coon, C. S. (Editor)
1948. A reader in general anthropology. New York.

Coon, C. S., Garn, S. M., and Birdsell, J. B.
1950. Races . . . a study of the problems of race formation in man. Springfield, Illinois.

Cozzi, Ernesto
1909. Malattie, morte, funerali nelle montagne d'Albania. *Anthropos*, vol. 4, pp. 903–18.
1910a. La vendetta del sangue nelle montagne dell'alta Albania. *Anthropos*, vol. 5, pp. 654–87.
1910b. Lo stato agricolo in Albania, con speciale riguardo alle montagne di Scutari. *Revue d'Ethnographie et de Sociologie*, vol. 1, pp. 33–49.
1912. La donna albanese con speciale riguardo al diritto consuetudinario delle montagne de Scutari. *Anthropos*, vol. 7, pp. 617–26.

1914. Credenze e superstizioni nelle montagne dell'Albania. *Anthropos*, vol. 9, pp. 449–76.

Cvijič, Jovan
1918. La peninsule balkanique. Paris.

Deniker, Joseph
1890. Essai d'une classification des races humaines, basée uniquement sur les caractères physiques. *Société d'Anthropologie de Paris, Bulletin*, series 3, vol. 12, pp. 320–36.
1900. Les races et les peuples de la terre. Paris.
1914. Les peuples balkaniques, surtout les Serbes et les Bulgares, au point de vue anthropologique. *Institut Français d'Anthropologie, Comptes Rendus des Seances*, vol. 1, pp. 170-72.

Dingwall, E. J.
1931. Artificial cranial deformation. London.

Dobzhansky, Theodosius
1944. On species and races of living and fossil man. *American Journal of Physical Anthropology*, n.s., vol. 2, pp. 251–65.

Durham, M. E.
1928. Some tribal origins, laws, and customs of the Balkans. London.

Ehrich, R. W. and Coon, C. S.
1948. Occipital flattening among the Dinarics. *American Journal of Physical Anthropology*, n.s., vol. 6, pp. 181–86.

Ewing, J. F., S.J.
1947. Occipital flattening as a racial diagnostic. *American Journal of Physical Anthropology*, n.s., vol. 5, pp. 235–36.

Farlati, Daniele
1817. Illyrici Sacri, vol. 7. Venice.

Frasheri, S. Th.
1930. Permes Mirdites ne Dimer. Korçe.

Gates, R. R.
1946. Human genetics. 2 vols. New York.

Gegaj, A.
1937. L'Albanie et l'invasion turque au XV^e siècle. Louvain.

Giuffrida-Ruggeri, V.
1921. I dati craniologici sull'Albania e due crani Albanesi inediti. *Archivio per l'Antropologia e l'Etnologia*, vol. 50, pp. 3–17.

Glück, Leopold
1897. Zur physischen Anthropologie des Albanesen. *Wissenschaftliche Mittheilungen aus Bosnien und der Herzegowina*, vol. 5, pp. 403–33.

113

GORING, CHARLES
1913. The English convict; a statistical study. London.

HABERLANDT, ARTHUR
1917. Kulturwissenschaftliche Beiträge zur Volkskunde von Montenegro, Albanien und Serbien. *Zeitschrift für österreichische Volkskunde*, Ergänzungsband 12 (zu Jahrgang 23).

HABERLANDT, ARTHUR AND LEBZELTER, V.
1919. Zur physischen Anthropologie der Albanesen. *Archiv für Anthropologie*, n.s., vol. 17, pp. 123–54.

HANNESSON, G.
1925. Körpermasse und Körperproportionen der Isländer. Reykjavik.

HASLUCK, M. M.
1932. Physiological paternity and belated birth in Albania. *Man*, vol. 32, pp. 53–54.
1933. Bride-price in Albania. A Homeric parallel. *Man*, vol. 33, pp. 191–95.
1939. Couvade in Albania. *Man*, vol. 39, pp. 18–20.
1947. Head-deformation in the Near East. *Man*, vol. 47, pp. 130–31.

HASLUCK, M. M. AND MORANT, G. M.
1929. Measurements of Macedonian men. *Biometrika*, vol. 21, pp. 322–36.

HOOTON, E. A.
1930. The Indians of Pecos Pueblo, a study of their skeletal remains. New Haven.

HOWARD, SIR ALBERT
1947. The soil and health. New York.

HOWELLS, W. W.
1936. Some uses of the standard deviation in anthropometry. *Human Biology*, vol. 8, pp. 592-600, and table 1.

HUGHES, B. O.
1938. The physical anthropology of native born Armenians. Ph.D. thesis, Harvard University Library, unpublished.

JIREČEK, KONSTANTIN
1916. Albanien in der Vergangenheit. *Illyrisch-Albanische Forschungen*, vol. 1, pp. 63–93.

KIEPERT, HEINRICH
1894. Formae orbis antiqui. Berlin.

LITTLE, C. C.
1919. Some factors influencing the human sex-ratio. *Society for Experimental Biology and Medicine, Proceedings*, vol. 16, pp. 127–30.

LOWMAN, G. S.
1932. The phonetics of Albanian. *Language*, vol. 8, no. 4, pp. 271–93.

LUSCHAN, FELIX VON
1898. Zur Anthropologie Kleinasiens. *Globus*, no. 13, Sonderabdruck von Band 73, pp. 211–14.

MARTIN, RUDOLPH
1928. Lehrbuch der Anthropologie. 3 vols. Jena.

113

Matheny, W. D. and Meredith, H. V.

1947. Mean body size of Minnesota schoolboys of Finnish and Italian ancestry. *American Journal of Physical Anthropology*, n.s., vol. 5, pp. 343–55.

Menghin, Oswald

1919–20. Die prähistorische Archäologie in Montenegro und Albanien. *Prähistorische Zeitschrift*, vol. 11-12, pp. 197–202.

National Catholic Almanac

1946. Paterson, N. J.

Newman, Bernard

1936–37. The Law of Lek. *The Geographical Magazine*, vol. 4, pp. 143–56.

Noli, Fan Stylian, Bishop

1947. George Castrioti Scanderbeg, 1405–1468. International Universities Press. New York.

Nopcsa, Franz, Baron von

1910. Über seine archäologischen Funde in Nordalbanien. *Anthropologische Gesellschaft in Wien*, Mittheilungen, vol. 40, pp. [31]–[32].

1925. Albanien; Bauten, Trachten und Geräte Nordalbaniens. Berlin and Leipzig.

1927. Ergänzungen zu meinen Buche über die Bauten, Trachten und Geräte Nordalbaniens. *Zeitschrift für Ethnologie*, vol. 59, pp. 279–81.

Pisko, J. E.

1895. Volksmedicin in Nordalbanien. *Anthropologische Gessellschaft in Wien*, Mittheilungen, vol. 25, pp. [63]–[64].

1896. Gebräuche bei der Geburt und Behandlung der Neugeborenen bei den Albanesen. *Anthropologische Gesellschaft in Wien*, Mittheilungen, vol. 26, pp. 141–46.

Pittard, Eugène

1921. Découverte de l'âge de la pierre polie en Albanie. *Archives Suisses d'Anthropologie Générale*, vol. 4, pp. 271–74.

Richtofen, Bolko, Freiherr von

1939. Die ersten Spuren Eiszeitmenschen in Albanien. *Quartär*, vol. 2, pp. 151–52.

Ripley, W. Z.

1899. The races of Europe; a sociological study. New York.

Ritala, A. M.

1933. Zur Berechnung des Statistischen Mittleren Fehlers. *Duodecim*, series B, vol. 19, no. 2. Helsinki.

Schlaginhaufen, Otto

1946. Die Anthropologie der Eidgenossenschaft. *Anthropologia Helvetica*, vol. 1. *Archiv der Julius Klaus-Stiftung, Ergänzungsband* zu Band 21.

Schulz, Reimer

1938. Leichenbegängnis und Totenkult bei den Malisoren. *Atlantis*, vol. 10, pp. 257-59.

113

SEMPLE, ELLEN C.
1931. The geography of the Mediterranean region. New York.

SHEPHERD, W. R.
1921. Historical atlas. New York.

START, L. E.
1939. The Durham collection of garments and embroideries from Albania and Yugoslavia. *Bankfield Museum Notes*, series 3, no. 4. Halifax.

STILES, WALTER
1946. Trace elements in plants and animals. Cambridge, England.

STRABO
1807. Strabonis geographia. Falconer edition. London.

ŠUFFLAY, MILAN VON
1916. Die Kirchenzustände im vortürkischen Albanien. *Illyrisch-Albanische Forschungen*, vol. 1, p. 188.

THALLÓCZY, LUDWIG VON (EDITOR)
1916. Illyrisch-Albanische Forschungen. Munich and Leipzig.

TRAEGER, PAUL
1904. Zur Forschung über alte Schiffstypen. C. Schiffsfahrzeuge in Albanien und Mazedonien. *Deutsche Gesellschaft für Anthropologie, Ethnologie und Urgeschichte, Correspondenz-Blatt*, vol. 35, pp. 25–38.

UGOLINI, L. M.
1927. Le antichità primitive dell'Albania. *Bollettino di Paletnologia Italiana*, vol. 47, pp. 181–88.

VIRCHOW, HANS

1924. Die Armenische Wiege. *Zeitschrift für Ethnologie,* vol. 56, pp. 208–11.

VULPE, RADU

1932. Bronzefunde aus Nord-Albanian. *Prähistorische Zeitschrift,* vol. 23, pp. 132–45.

WASHBURN, S. L.

1947. The relationship of the temporal muscle to the form of the skull. *Anatomical Record,* vol. 99, no. 3, pp. 239–48. (Reprint: *Yearbook of Physical Anthropology,* vol. 3, pp. 249–58.)

WEIDENREICH, FRANZ

1945. The brachycephalization of recent mankind. *Southwestern Journal of Anthropology,* vol. 1, no. 1, pp. 1–54.

WEISBACH, AUGUSTIN

1897a. Altbosnische Schädel. *Anthropologische Gesellschaft in Wien, Mittheilungen,* vol. 27, pp. 80–85.

1897b. Prähistorische Schädel von Glasinac. *Wissenschaftliche Mittheilungen aus Bosnien und der Herzegowina,* vol. 5, pp. 562–76.

WOO, T. L. AND PEARSON, KARL

1927. Dextrality and sinistrality of hand and eye. *Biometrika,* vol. 19, pp. 165–99.

YULE, G. UDNY

1927. An introduction to the theory of statistics. London.

ZAMPA, RAPHAEL

1886. Anthropologie Illyrienne. *Revue d'Anthropologie,* series 3, vol. 1, pp. 625–47.

COLLOTYPE FIGURES 8–16

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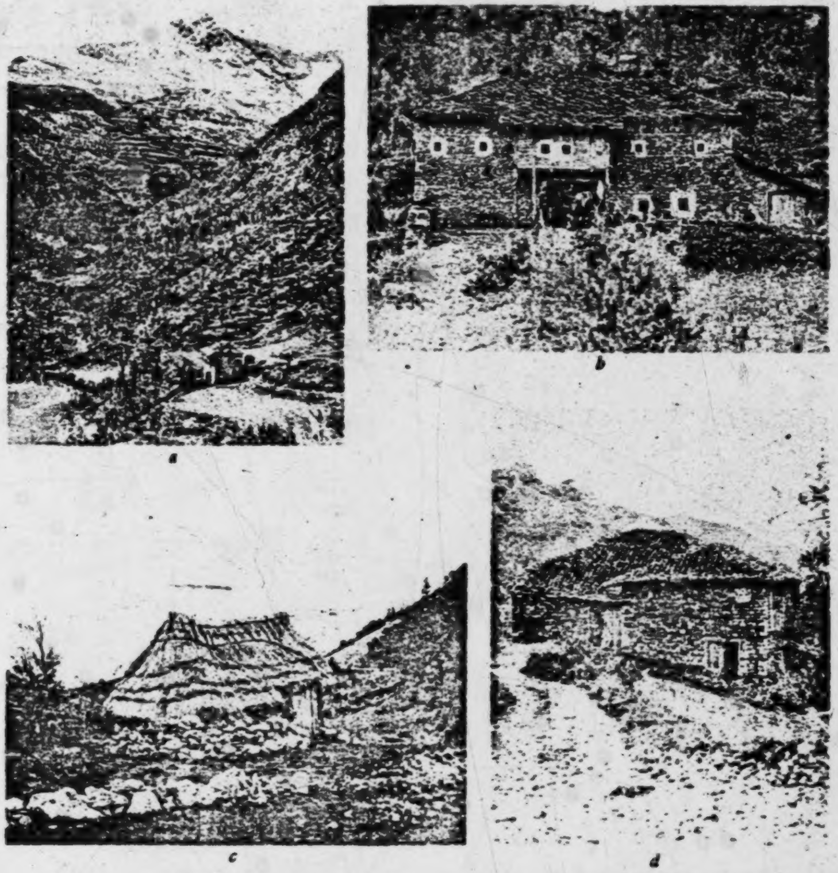

a, An isolated *kulla*, Spaç *bairak*, Mirdita. *b*, A Puka *ban*. *c*, Herder's hut, summer pasture. *d*, House in Shoshi.

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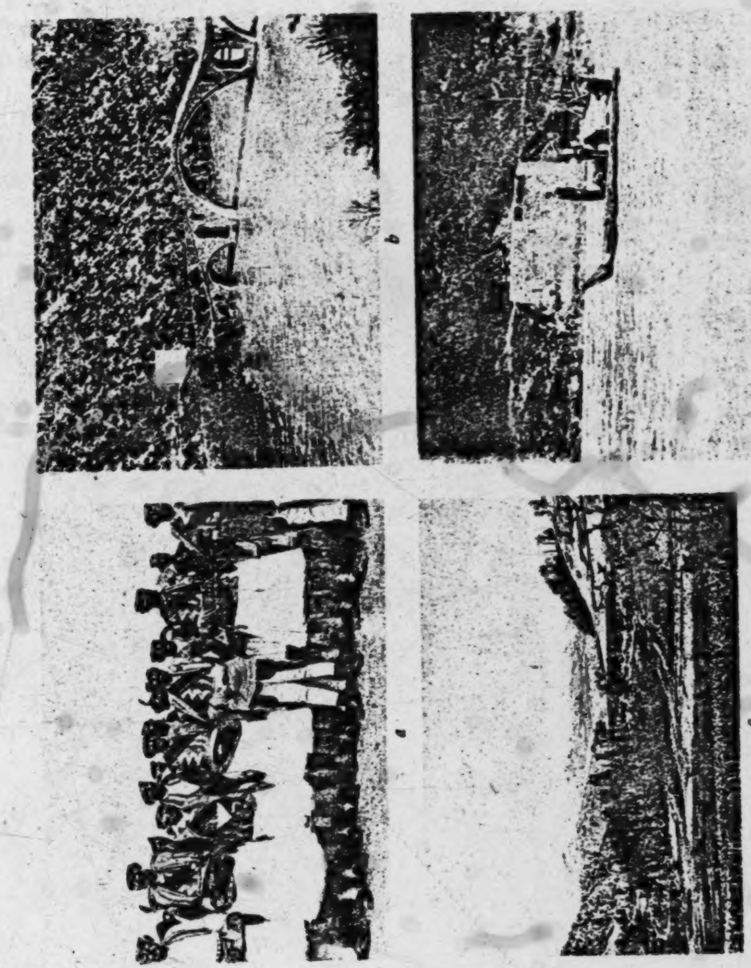
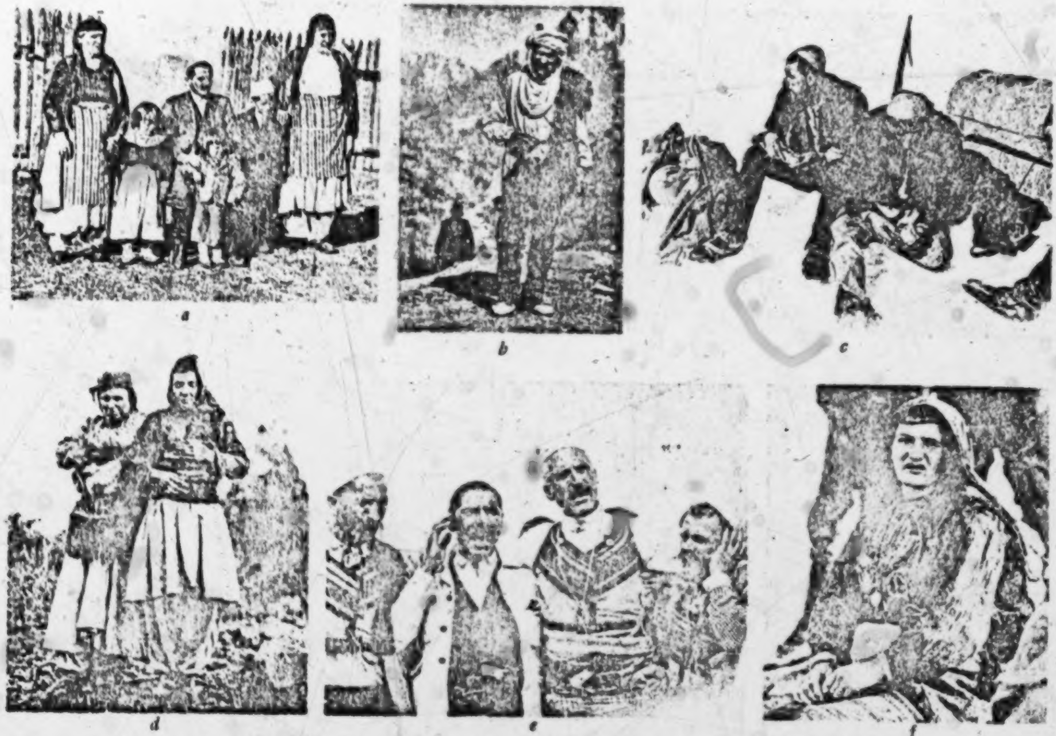
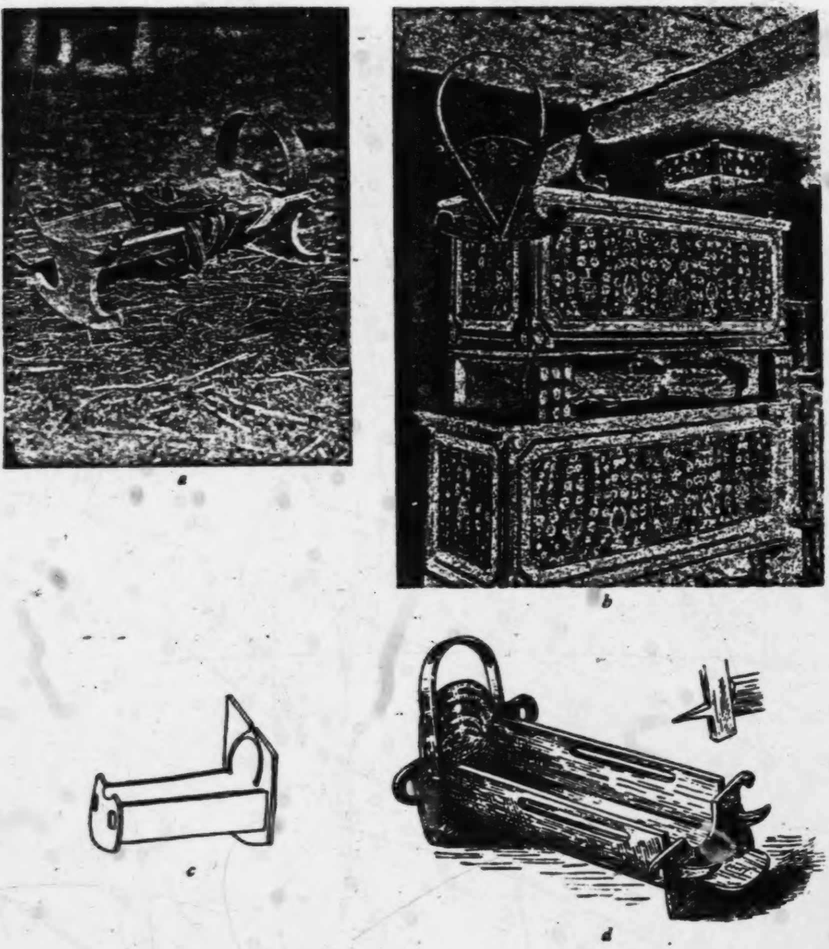


a, Tosks dancing at King Zog's birthday party, 1929. *b*, Turkish bridge over the White Drin, near Kūkes. *c*, Scene in Mati. *d*, Ferrying across the Black Drin between Lūma and Mal i Zi.



a, Prince Jon Markajon of Mirdita, with his wife, mother, and children. *b*, Tom Tashi, the expedition's host in Shoshi. *c*. Dukagin porters resting on the pass between Merturi and Shala. *d*, A sworn virgin of Mirdita (right) with her friend. *e*, A group of Gheg *bairaktars* singing their defiance at King Zog's 1929 birthday celebration – the man in the left center is the *bairaktar* of Hoti; in the right center, of Klementi. *f*, A Catholic Gheg woman, probably from Zadrima.



Cradles. *a*, Zadrima cradle. *b*, Cradle from Scutari (Haberlandt, 1917, fig. 29). *c*, Vlach cradle (Haberlandt, 1917, table 3, no. *12*). *d*, Cradle from Planti (Nopcsa, 1925, fig. 78).

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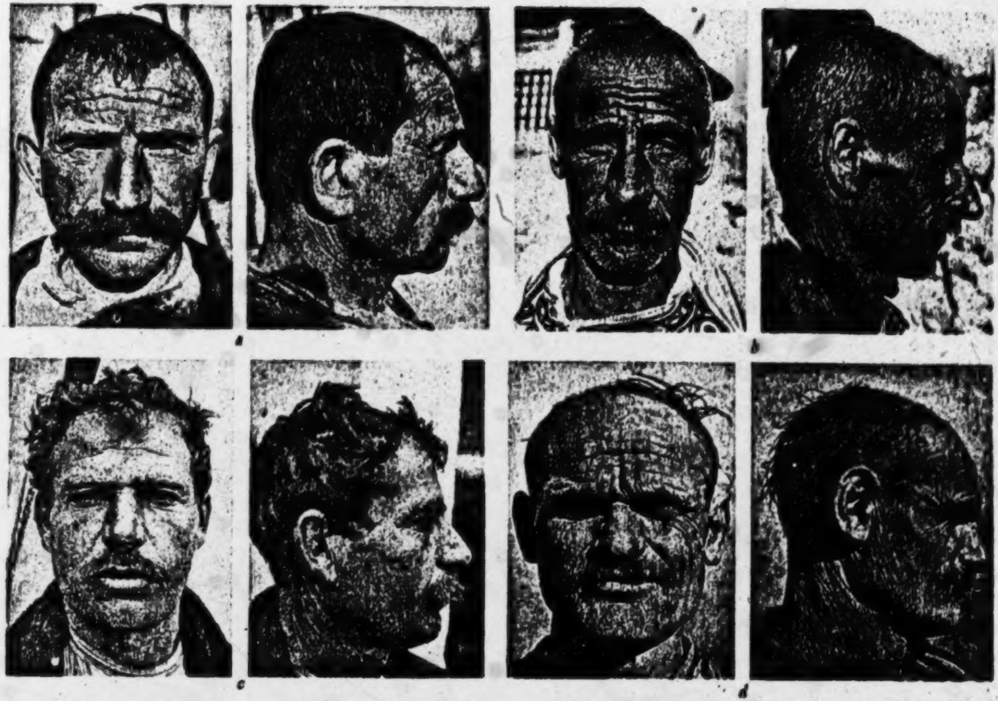

The Gheg Phenotype. *Standard Dinaric Mountain Gheg: a,* Zadrima tribe; age, 35; eyes, blue-brown; hair, dark brown; beard, reddish brown; cephalic index, 88; facial index, 83; nasal index, 65; stature, 151.1. *b,* Dibra .. be; age, 50; eyes, blue-brown; hair, black grayness; beard, red-brown grayness; cephalic index, 80; facial index, 94; nasal index, 58; stature, 178.8. *The Borreby type of the northwest: c,* Malsia e Madhe tribe; age, 40; eyes, blue; hair, golden; beard, golden; cephalic index, 86; facial index, 86; nasal index, 67; stature, 175.0. *d,* Dukagin tribe; age, 48; eyes, green-brown; hair, golden; beard, golden; cephalic index, 90; facial index, 78; nasal index, 67; stature, 190.

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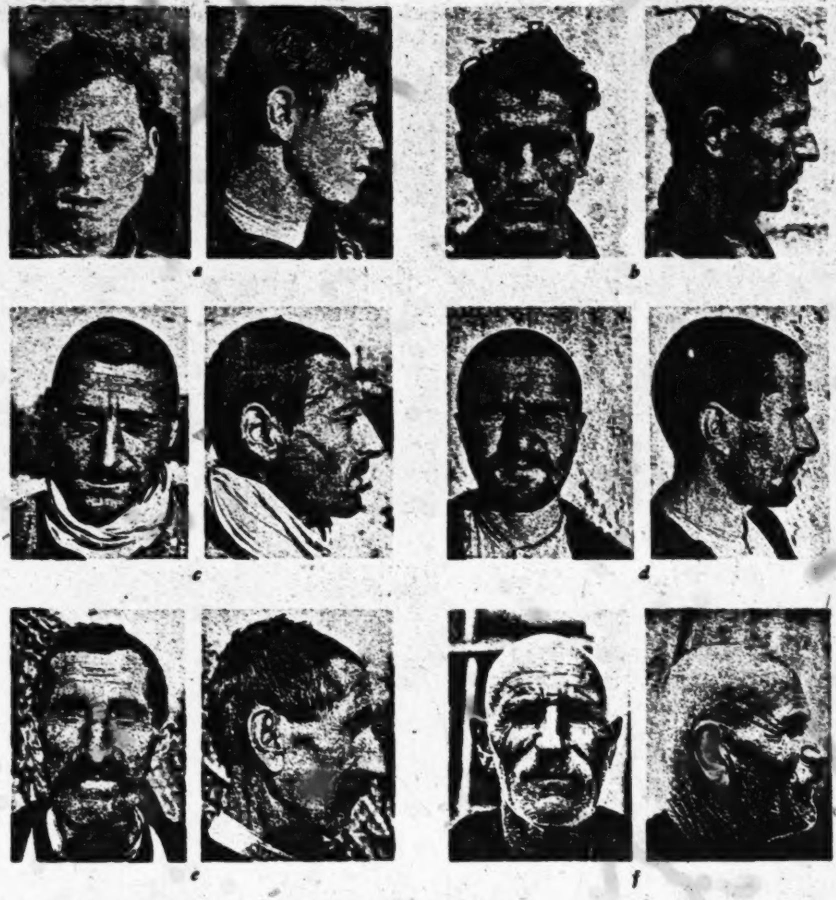

Age Changes in Face Form. *18–26-year-old group: a,* Malsia e Jakovës tribe; age, 22; eyes, green-brown; hair, dark brown; beard, dark brown; cephalic index, 84; facial index, 84; nasal index, 57; stature, 172.5. *b,* Puka tribe; age, 24; eyes, green-brown; hair, dark brown; beard, golden; cephalic index, 80; facial index, 91; nasal index, 58; stature, 174. *30–50-year-old group: c,* Zadrima tribe; age, 30; eyes, green-brown; hair, dark brown; beard, light brown; cephalic index, 87; facial index, 82; nasal index, 48; stature, 165. *d,* Mirdita tribe; age, 48; eyes, green-brown; hair, black grayness; beard, red-brown grayness; cephalic index, 84; facial index, 80; nasal index, 59; stature, 172.3. *60–75-year-old group: e,* Zadrima tribe; age, 60; eyes, green-brown; hair, dark brown-gray; beard, red-brown grayness; cephalic index, 89; facial index, 85; nasal index, 53; stature, 171.6. *f,* Luma tribe; age, 65; eyes, green-brown; hair, black grayness; beard, red-brown grayness; cephalic index, 80; facial index, 85; nasal index, 58; stature, 170.7.

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& Coon E-5 (1929-30; 46-48) 1950 EGI Albania EGI
Highland Ghegs

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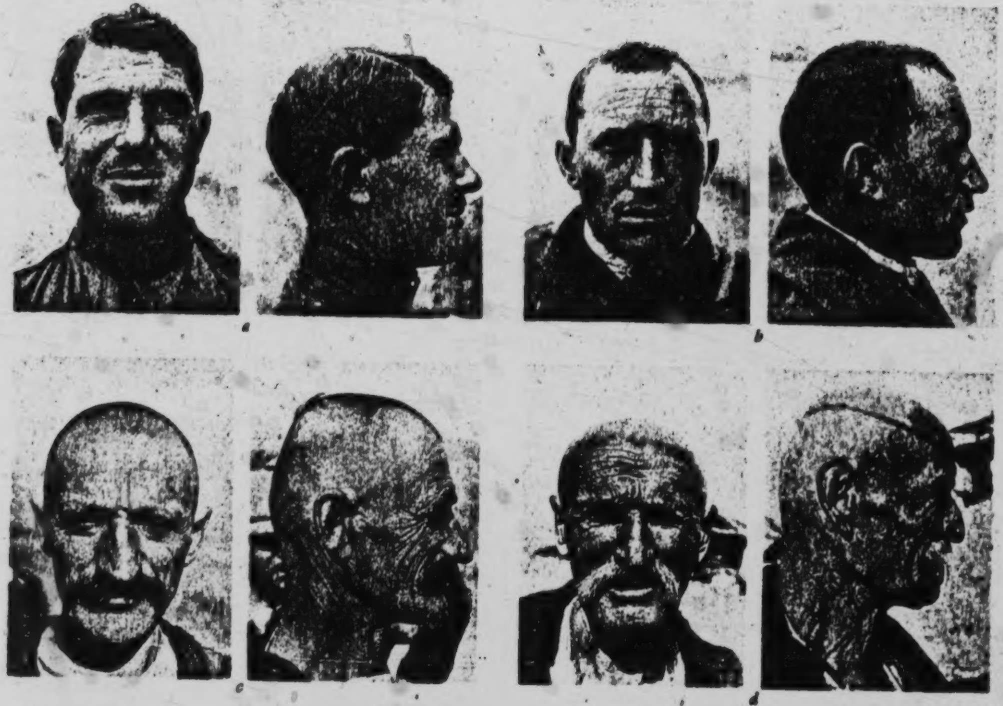

VARIATIONS IN HEAD FORM. *The undeformed head: a*, Luma tribe; age, 25; eyes, dark brown; hair, dark brown; beard, dark brown; cephalic index, 76; facial index, 87; nasal index, 62; stature, 177. *b*, Luma tribe; age, 25; eyes, blue-brown; hair, medium brown; beard, light brown; cephalic index, 76; facial index, 86; nasal index, 55; stature, 168.8. *Lambdoid flattening: c*, Dukagin tribe; age, 50; eyes, green-brown; hair, black; beard, reddish brown; cephalic index, 85; facial index, 75; nasal index, 68; stature, 174.1. *d*, Malsia e Madhe tribe; age, 65; eyes, green-brown; hair, black grayness; beard, red-brown grayness; cephalic index, 88; facial index, 86; nasal index, 63; stature, 177.0.

8: Coon E-5 (1929-30; 46-48) 1950 EGl Albania EGl
Highland Ghegs

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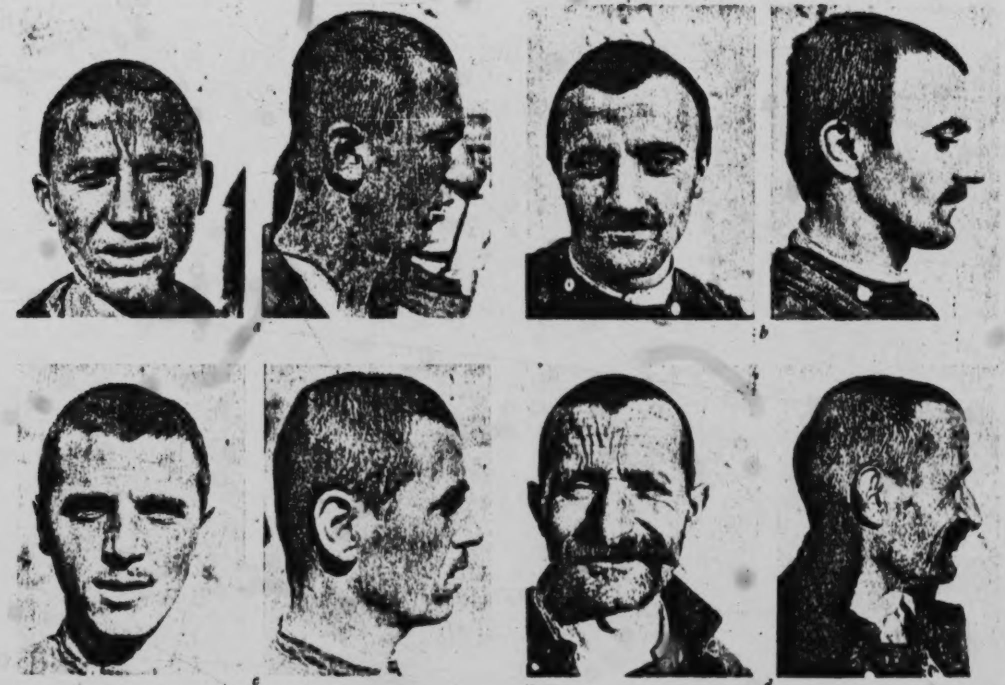

VARIATIONS IN HEAD FORM (continued). *Occipital flattening:* *a*, Lums tribe; age, 26; eyes, green-brown; hair, golden; beard, golden; cephalic index, 96; facial index, 86; nasal index, 65; stature, 177.0. *b*, Puka tribe; age, 28; eyes, green-brown; hair, dark brown; beard, dark brown; cephalic index, 92; facial index, 81; nasal index, 65; stature, 170.2. *Both lambdoid and occipital flattening:* *c*, Malsia e Jakovës tribe; age, 20; eyes, green-brown; hair, black; beard, black; cephalic index, 90; facial index, 86; nasal index, 62; stature, 174.0. *Bathrocephaly:* *d*, Mirdita tribe; age, 50; eyes, green-brown; hair, black grayness; beard, red-brown grayness; cephalic index, 80; facial index, 82; nasal index, 40; stature, 162.1.

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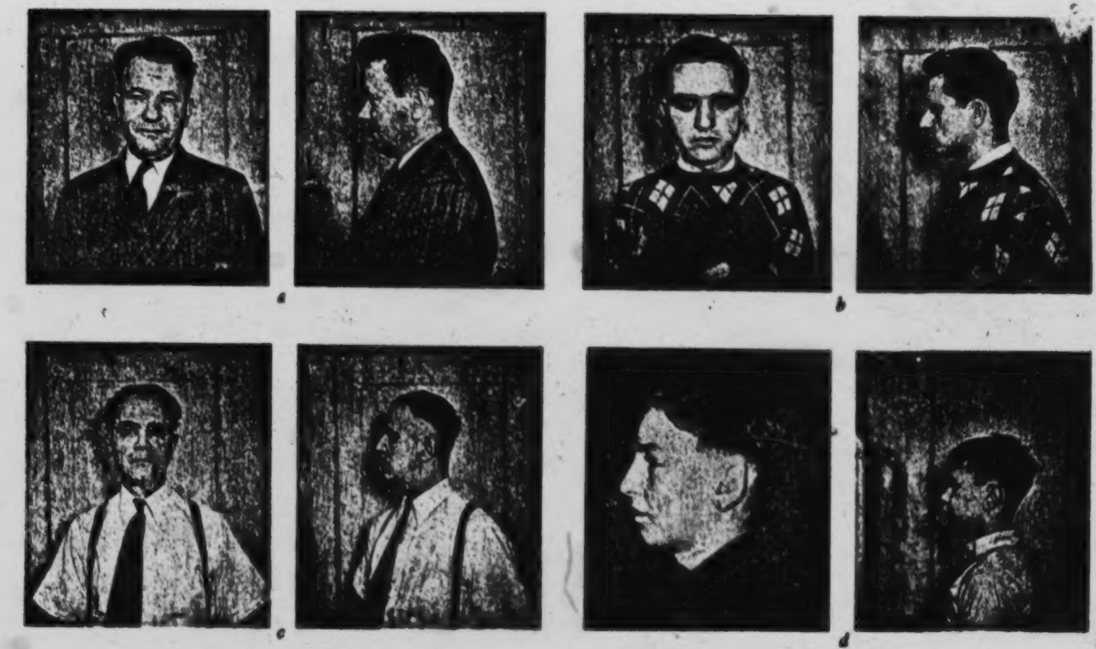

The Boston Tosk. *a*, Albanian-born. *b*, American-born. *c*, Albanian-born. *d*, American-born.

8: Coon EG1 Albania EG1
Highland Ghegs

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[For the analysis, classification, quantification and organization of data on composition of tribal samples, measurements and indices, observations, variability of the series and of the tribes, phenotypical differences between tribes and statistical validation; regional variations in body size and form, cranial vault, form of face, pilosity, pigmentation; age and strength, related metrical characters, certain soft parts of the face, pilosity, graying, color changes; bite and age, geography, face heights, face breadths; soil and physique; privilege and nutrition; cranial deformation, handedness, asymetry and flattening, anthropometry of flattening; and tribal distribution of head form, see category 116, pp. 51-54a; 54c-54q; 62a-71c; 72b-79e; 81a-85e; 87a-89b; 92a-98e.]

8: Coon

EG1 Albania EG1
Highland Ghegs

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[For data on cranial deformations, see category 116, pp. 90a; 91a-98e.]